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A REVISION OF AGATHOSMA

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The genus *Agathosma* is endemic in South Africa and is confined to areas of the Cape Flora in the Cape Province, Natal and Basutoland. The greatest concentration of species is in the south-western part of the Cape Province where the distribution extends from the coast to the tops of the highest mountains. Very few extend eastward into the region of summer rainfall. One of these, with great variation in size and shape of leaves, has a range of distribution on the mountains from Worcester to Maritzburg. Many species are restricted to certain soils, altitudes, aspects and conditions of dryness and moisture. For examples, those on calcareous soil at the coast, on sandy coastal flats, swampy soil, margins of streams, on rocky ledges or in rock-crevices.

The usual habit is of a much branched shrublet, few species reaching the height of 2 metres. Hairs are generally present on the branchlets, and are usually more or less reflexed, and often confined to longitudinal strips alternating with glabrous strips at the bases of the leaves. Conversely, on glabrous branchlets there are hairy strips at the bases of the leaves. These characters are not always constant in a species, the strips not always being apparent. The leaves in many species arise at the upper ends of raised strips with which they are articulated, and so appear to have a decurrent petiole. The petiole is usually short, narrow and slightly compressed, rarely with any conspicuous character. When the leaves vary considerably in size, the shorter are often relatively wider than the longer, and the base of the blade is usually blunter. The larger type of leaf usually has a slightly convex, flat or slightly concave upper surface. The smaller almost ericoid leaf is usually quite distinctly concave above. The margins are rarely closely involute or revolute. Glands may occur on the branchlets, leaves, calyx, petals, anthers,

staminodes and ovary. They may be sunken or partly raised, stalked or at the ends of hairs.

The flowers of most species are in terminal clusters often resembling a capitulum. The outer and lower flowers of a cluster sometimes arise in the axils of leaves, so that terminal and axillary flowers are present on the same plant. Species with only axillary flowers are relatively few. Flowers are rarely produced at the ends of short leaflets or bracteate branchlets. In only two species are the flower clusters situated in a lateral position or at the forking of the stems. The size and shape of the petals is often variable to a considerable extent, but they usually have useful characters for the purpose of classification. The filaments of the stamens are frequently unequal in length. Anthers often have a gland at the apex of the connective. Staminodes, though variable in some species, have many useful characters. The petaloid type of staminode is present mostly in flowers with an ovary of 3 carpels. The disk varies little in shape, and rarely has any remarkable character. It is seldom described. The fluted shape of the outer surface is the result of pressure by the filaments during early stages of development. Sterile flowers with a partly developed gynoeceium are very frequent. All the flowers, with or without exception, in an inflorescence may be imperfect in respect of the gynoeceium. Some species produce comparatively few perfect flowers.

Hitherto little attention has been given to the structure of the ovary as providing characters for taxonomic purposes. It is now evident that the structure of the ovary is the best guide to the natural relationships between the species, as well as indicating one of the trends of evolution in the genus. The number of carpels varies from 1—5. In all species there is a certain predominating number. When there are exceptions the numbers are mostly less, rarely greater, than the usual number. Species with the same number of carpels are not necessarily related. In most species the usual number is 3. Ovaries with 5 carpels are usually correlated with the largest most expanded leaves and axillary flowers, probably the oldest characters in the genus. Ovaries with fewer carpels are associated with narrower, concave and a more ericoid type of leaves, and with flowers in terminal clusters. Most of the longitudinal development of the ovary is in the upper half, about the apex. A mature ovary with the upper half entirely hairy may, in a younger state, have been hairy only on or around the apex. The reduction in the number of carpels is the most remarkable feature of the ovary of *Agathosma*. The author has found that a similar reduction is a common feature also in the genus *Phyllica* and the families *Bruniaceae* and *Restionaceae*, where there is evidence also of a tendency to reduce the number and size and to discard

some or all the parts of the perianth. It is an interesting fact that species of *Agathosma* with the most primitive characters and species with the most advanced characters occur in the Clanwilliam Division.

There are several fairly natural groups of species with similarity in leaf and floral characters. But these groups are connected through other species and cannot be isolated satisfactorily. Though many species have been merged with others of earlier date, there probably are some of those maintained in this work which will have to be reduced to synonyms when further material shows the necessity of widening the scope of certain species. Hitherto undue importance has been given to some characters which now seem to have little or no importance, because of great variability.

Several previous workers have suggested that *Agathosma* and *Barosma* should be united. The chief characters which were used in separating these genera are in the arrangement of the leaves and the position of the flowers. But such of the characters as were used are not always constantly associated. For instance, the arrangement of the leaves in a species may have all the possibilities existing in both genera, opposite leaves may be accompanied by flowers in terminal clusters, and alternate leaves may be accompanied by axillary flowers. The result was that some species could not be placed in either genus satisfactorily. Because of those facts, the two genera are now united, preference being given to *Agathosma*, much the larger, so as to minimize changes in nomenclature.

All previous descriptions of the genus and species have been revised and mostly amplified, in order to widen the scope of many species and to include such characters as are regarded important in the present treatment. All varieties have been merged with the species, for the reason that they are all connected with the species through intermediate forms. Measurements of the leaves include the petiole. Measurements of floral parts are taken from fully developed flowers. The calyx-tube rarely has any important character, and is seldom mentioned. All the collections recorded in this work have been examined, unless otherwise stated, and only dried material has been used. A mark of exclamation (!) denotes that the type or a cotype has been seen. Localities are grouped under political divisions arranged in alphabetical order. The actual specimens used by Ecklon and Zeyher as types of their many species have not been traced, but most of their species are represented by cotypes in Sonder's collection in the Riksmuseet, Stockholm. These were received on loan in the Bolus Herbarium together with over 2,700 sheets from other institutions.

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AGATHOSMA, Willd. *Enum. Hort. Berol.* 259 (1809); *Bartl. and Wendl. f. Diosm.* 121 (1824); *DC. Prodr.* i, 714 (1824); *Harv. Gen.* 50 (1838); *Endl. Gen.* 1158, no. 6021 (1840); *Sond. in Harv. and Sond. Fl. Cap.* i, 390 (1860); *Benth. and Hook. f. Gen. Pl.* i, 290 (1863); *Harv. Gen.* ed. 2, p. 44 (1868); *Baillon, Nat. Hist. Pl.* iv, 465 (1875); *Engl. and Prantl, Pflanzenfam.* iii, §4, 149 (1897); *Thonner, Fl. Pl. Afr.* 296 (1915); *Marloth, Fl. S. Afr.* i, §2, p. 106 (1925); *Phillips, Gen. S. Afr. Fl. Pl.* 351 (1926); *Levy's, Guide to Flora of Cape Peninsula* 163 (1929); *Walgate in Fl. Cape Peninsula* 539 (1950). **Hartogia** Linn. *Syst.* ed. 10, p. 939 (1759); *O. Kuntze, Rev. Gen.* i, 100 (1891). **Diosmae** spp. Linn., Thunb., Lam., DC. etc. **Parapetalifera** *Wendl. Collect. Bot.* i, 15, 34 (1808). **Bucco** *Wendl. op cit.* 13, t. 2; *Roem. and Schultes, Syst. Veg.* v, 438 (1819). **Barosma** Willd. *Enum. Hort. Berol.* 257 (1809); *Bartl. and Wendl. f. Diosm.* 94; *DC. Prodr.* i, 714; *Jussieu in Mem. Mus. Paris* xii, 474 (1825); *Hook. in Curt. Bot. Mag.* 3413 (1835); *Endl. Gen.* 1158, no. 6020; *Harv. Gen. S. Afr. Pl.* 50; *Sond. in Harv. and Sond. Fl. Cap.* i, 392; *Benth. and Hook. f. Gen. Pl.* i, 290; *Harv. Gen. S. Afr. Pl.* ed. 2, p. 44; *Baillon, Nat. Hist. Pl.* iv, 465; *Engl. and Prantl, Pflanzenfam.* iii, §4, p. 148; *Sim, Forest Fl. of Cape Colony* 154 (1907); *Thonner, Fl. Pl. Afr.* 296; *Marloth, Fl. S. Afr.* ii, §1, p. 105; *Phillips, Gen. S. Afr. Fl. Pl.* 351; *Levy's, Guide to Flora of Cape Peninsula* 163; *Esterhuysen in Fl. Cape Peninsula* 538 (1950). **Baryosma** *Roem. and Schultes, Syst. Veg.* v, 448 (1819). **Dichosma** DC. ex Loud. *Hort. Brit.* 85 (1830). **Gymnonychium** *Bartl. in Linnaea* xvii, 354, t. 11 (1843).

Shrubs or undershrubs with ascending or rarely decumbent woody stems. Leaves opposite, ternate, quaternate, alternate or scattered, often crowded, sometimes imbricate, ascending, spreading or reflexed, entire or gland-crenate, shortly petiolate, linear, lanceolate, oblanceolate, oblong, elliptic, ovate, obovate, cordate or rotund, cuneate, rounded or cordate at the base, concave, convex or flat above, often with prominent nerves or keeled beneath; coriaceous, smooth, tubercled or with raised glands, usually $\pm$ conspicuously gland-dotted beneath, glabrous or $\pm$ hairy. Stipules none. Flowers bisexual or unisexual (gynoecium imperfectly developed), pedunculate or very rarely sessile, mostly in terminal clusters, often solitary or few together in the axils of the upper leaves. Bracteoles 2, usually arising on the peduncle, or none. Calyx 5-parted, often with the segments uneven in size and shape. Petals 5, very rarely

up to 8, hypogynous, imbricate in aestivation, sessile or clawed at the base, usually $\pm$ gland-dotted beneath. Stamens 5, free, at the base of the disk, with terete or compressed filaments. Anthers 2-celled, introrse, the connective usually with a terminal gland. Staminodes opposite the petals, usually narrow, dorsally compressed, often petaloid, usually with a gland at or behind the apex, rarely adnate to the base of the petals. Disk cup-shaped, crenulate, rarely toothed or lobed, usually clasping or often completely enveloping the ovary. Ovary superior, of 1—5 almost free carpels with or rarely without a process on or near the apex of the dorsal angle, and with 2 superimposed or collateral axile ovules. Style elongated, with a simple or subcapitate stigma. Fruit capsular, with 1—5 one-seeded cocci, the inner and outer walls separating at maturity. Seeds oblong or pyriform, with peripheric endosperm, and with a plane surface on one side of the base against which the aborted ovule is appressed.

KEY TO THE SPECIES.

- *Carpels usually 5:
 - †Staminodes distinctly widest above the middle:
 - ‡Carpels without processes:
 - Sepals lanceolate or ovate-lanceolate (21) *microcarpa*
 - Sepals ovate- obovate- or elliptic-oblong (20) *foetidissima*
 - ‡‡Carpels with processes:
 - Leaves cordate or reniform (22) *cordifolia*
 - Leaves neither cordate nor reniform:
 - §Petals with a claw distinctly as long or longer than the blade:
 - Processes on the ovary obovate (95) *conferta*
 - Processes on the ovary oblong (15) *pentachotoma*
 - §§Petals without a distinct claw or with a claw shorter than the blade:
 - Petals with a slender claw almost as long as the blade (16) *rubricaulis*
 - Petals cuneate in the lower half or at the base:
 - Processes on the ovary $\pm$ clavate:
 - Leaves alternate, mostly widest above the middle (9) *craspedota*
 - Leaves opposite, widest at or below the middle (7) *namaquensis*
 - Processes on the ovary oblong, rotund or transversely oblong:
 - Flowers in terminal clusters (23) *decurrens*
 - Flowers on short bracteate axillary stipes (4) *ovata*
 - ††Staminodes not distinctly widest above the middle:
 - ‡Staminodes oblong:
 - §Sepals oblong or elliptic-oblong:
 - Leaves 0.3—0.5 cm. long, concave above (10) *Phillipsii*
 - Leaves 0.5—1.4 cm. long, slightly concave, flat or slightly convex above (11) *Marlothii*
 - §§Sepals ovate, deltoid-ovate, lanceolate or ovate-lanceolate:
 - Processes on the ovary conical (13) *Pattisoniae*
 - Processes on the ovary not conical:
 - Processes elliptic, obovate or orbicular:
 - Leaves with closely revolute margins (24) *subteretifolia*
 - Leaves not as above (1) *Bathii*

- Processes linear, oblong or transversely oblong:
 Processes transversely oblong (25) *stipitata*
 Processes linear, oblong or linear-oblong:
 Leaves mostly 1—1.5 cm., rarely 0.5 cm.
 long (4) *ovata*
 Leaves mostly 0.6—1 cm. long (14) *Rehmanniana*
- ††Staminodes linear, lanceolate, linear-lanceolate, fusiform or oblong-elliptic:
 §Carpels without processes or, at most, umbonate on the dorsal angle:
 Flowers axillary (106) *microcalyx*
 Flowers in terminal clusters:
 Staminodes 2 mm. long, oblong-fusiform, pubescent beneath, with a long-stalked apical gland (12) *Acocksii*
 Staminodes 4.5—5 mm. long, linear, pilose beneath, with a large crateriform apical gland (8) *adenandriiflora*
- §§Carpels with distinct processes:
 ||Processes oblong:
 Sepals reflexed during the flowering period (11) *Marlothii*
 Sepals not reflexed:
 Leaves $\pm$ concave above:
 Petals oblong- or elliptic-ovate; stamens glabrous; staminodes oblong-elliptic; processes on the ovary somewhat lobed; style glabrous (19) *spinescens*
 Petals obovate or elliptic-obovate; stamens puberulous on the filaments; staminodes linear-lanceolate; processes on the ovary entire; style pubescent (26) *zwartbergense*
 Leaves $\pm$ convex or flat above:
 Leaves with glands confined to the margin (17) *Barnesiae*
 Leaves not as above (4) *ovata*
- |||Processes obovate or rotund:
 Processes obovate:
 Petals 0.6—0.7 cm. long, obovate (3) *distans*
 Petals 1—1.5 cm. long, ovate-lanceolate (2) *insignis*
 Processes rotund or obovate-rotund:
 Staminodes linear (18) *divaricata*
 Staminodes lanceolate:
 Leaves linear; petals 2.25—3 mm. long (20) *foetidissima*
 Leaves wider; petals 0.7—1 cm. long:
 Leaves widest in the lower half: processes on the ovary ovate-rotund (5) *crenulata*
 Leaves widest in the upper half: processes on the ovary obovate-rotund (6) *betulina*
- **Carpels usually 4:
 †Petals cuneate or rounded at the base, without a distinct claw:
 Leaves with glands scattered on the lower face (28) *purpurea*
 Leaves with glands confined to the margin:
 Ovary glabrous (47) *odoratissima*
 Ovary pubescent and pilose (29) *hirsuta*
- ††Petals with a distinct claw at the base:
 Petals 4.5 mm. long; ovary distinctly stipitate (27) *tabularis*
 Petals 2.5 mm. long; ovary not distinctly stipitate (30) *Bodkinii*
- ***Carpels usually 3:
 †Bracteoles not arising on the peduncle:
 †Leaves mucronate:
 §Processes on the ovary oblong:
 Leaves with glands usually confined to the margin (32) *acutissima*

- Leaves with glands not confined to the margin. . . (31) *puberula*
- §§Processes on the ovary rotund, eventually elongating:
- ||Glands on the lower face of the leaves, except the margin, arranged in 2—6 rows:
- Sepals widely oblong or widely obovate, widely membranous at the margin (33) *mucronulata*
- Sepals oblong or oblong-lanceolate, not widely membranous at the margin (35) *Martiana*
- |||Glands on the lower face of the leaves mostly at or confined to the margin:
- Sepals oblong or distinctly widest above the middle (37) *pilifera*
- Sepals lanceolate or ovate-lanceolate (41) *apiculata*
- ††Leaves not mucronate:
- Leaves distinctly widest above the middle (43) *fraudulenta*
- Leaves not as above:
- Sepals linear-spathulate (48) *Sladeniana*
- Sepals oblong, ovate or lanceolate:
- Processes on the ovary widely spathulate (49) *mirabilis*
- Processes on the ovary oblong:
- Staminodes linear-subulate (50) *pulchella*
- Staminodes lanceolate:
- Sepals linear-lanceolate, attenuate; petals tapering to a wide base (51) *stenosepala*
- Sepals ovate-lanceolate; petals with a distinct claw $\frac{2}{3}$ as long as the blade. (52) *glandulosa*
- ††Bracteoles arising on the peduncle, sometimes rudimentary:
- ‡Staminodes resembling the petals but with a narrower blade:
- Sepals $\pm$ pubescent above (53) *anomala*
- Sepals not pubescent above:
- Bracteoles arising at or near the apex of the peduncle; style partly pilose (63) *aemula*
- Bracteoles arising on the lower half of the peduncle:
- Leaves rough with papillae beneath (64) *scaberula*
- Leaves not as above:
- Leaves with a stout keel, very conspicuously gibbous behind the apex, ciliate with coarse rigid hairs (66) *eriantha*
- Leaves not as above, but sometimes ciliate with thin flexible hairs (55) *bifida*
- ††Staminodes not resembling the petals:
- §Leaves convex, flat or slightly concave above, or if not distinctly so then spreading or reflexed:
- ||Petals less than 3 mm. long:
- Leaves at first minutely puberulous; petals without a distinct claw (37) *pilifera*
- Leaves glabrous; petals with a claw half as long as the blade:
- Leaves elliptic or ovate (70) *minuta*
- Leaves cordate, rotund or widely ovate (71) *orbicularis*
- |||Petals at least 3 mm. long:
- Petals with a claw twice as long as the blade. (115) *imbricata*
- Petals with a claw less than twice as long as the blade:
- ¶Petals with a claw $\frac{1}{4}$ — $\frac{1}{2}$ as long as the blade:
- Leaves distinctly nerve-gibbous behind the apex:
- Leaves elliptic-oblong, oblong- or ovate-lanceolate (72) *Dielsiana*

- Leaves oblong-lanceolate, ovate, rotund or orbicular:
- Petals with a claw $\frac{1}{2}$ as long as the blade; staminodes linear, attenuate at both ends; ovary with rotund processes. (73) *Muirii*
- Petals with a claw $\frac{1}{4}$ as long as the blade; staminodes narrowly linear near the base, lanceolate upwards; ovary with obovate-oblong processes (74) *riversdalensis*
- Leaves not distinctly gibbous behind the apex:
- Flowers in terminal clusters (77) *florida*
- Flowers in axillary clusters (78) *venusta*
- ¶¶Petals with a claw at least half as long as the blade:
- ×Staminodes distinctly widest in the uppermost third of their length:
- Leaves mostly 4—6 mm. long, oblong-elliptic, elliptic, ovate or subrotund (82) *lanceolata*
- Leaves 3·5—4 mm. long, obovate, obovate-oblong or rotund (79) *thymifolia*
- ××Staminodes widest at or below the middle:
- Leaves with a pilose margin closely revolute to a prominent pilose nerve (67) *serpyllacea*
- Leaves not as above:
- +Leaves with hairs confined to the margin and nerve:
- Leaves erect-spreading or spreading (68) *Cerefolium*
- Leaves reflexed or spreading:
- Leaves usually 2·5—3 mm. long, oblong- or ovate-lanceolate, or ovate, obtuse; staminodes lanceolate, cuneate at the base (76) *latipetala*
- Leaves usually 4—5 mm. long, lanceolate, acute or subacute; staminodes lanceolate in the upper half, tapering from the middle to the base (83) *trichocarpa*
- ++Leaves with hairs not confined to the margin and nerve:
- Leaves very much reflexed (85) *marifolia*
- Leaves not much reflexed. (68) *Cerefolium*
- §§Leaves usually distinctly concave or furrowed above, mostly erect-spreading or ascending, sometimes spreading:
- ||Leaves mostly widest at or above the middle or linear or oblong and not distinctly widest in any part:
- ¶¶Staminodes widest above the middle:
- ×Staminodes partly adnate to the petals:
- Leaves pectinate-ciliate with rigid closely set hairs; sepals spatulate-oblong (87) *Foleyana*
- Leaves and sepals not as above:
- Leaves at first pilose beneath, often subpersistently so; bracteoles at the apex or on the upper half of the peduncle; petals with an ovate blade; ovary densely pilose (91) *concava*

- Leaves glabrous or at most setaceo-pubescent beneath; bracteoles at the middle of the peduncle; petals with an obovate blade; ovary glabrous, or sparsely setose on the processes (89) *alticola*
- × × Stamnodes free:
- + Petals with a claw almost $2\frac{1}{2}$ —3 times as long as the blade:
- Flowers surrounded by widened leaves with scarious margins (98) *Hookeri*
- Flowers not surrounded by widened leaves (124) *bicolor*
- + + Petals with a claw shorter than to twice as long as the blade:
- Leaves conspicuously swollen behind the apex (97) *gonaquensis*
- Leaves not, or sometimes slightly, swollen behind the apex:
- Flowers accompanied by wide scarious usually brown bracts . . (90) *alpina*
- Flowers not accompanied by such bracts:
- Sepals with closely set long cilia . . (96) *Peglerae*
- Sepals at most ciliate or sparsely ciliate:
- Petals with a claw $\frac{1}{2}$ — $\frac{3}{4}$ as long as the blade (75) *pallens*
- Petals with a claw as long to twice as long as the blade . . (107) *bisulca*
- ¶¶ Stamnodes not widest above the middle:
- × Leaves narrowly elliptic, narrowly ovate or distinctly widest above the middle:
- Bracteoles on the lower half of the peduncle (86) *elata*
- Bracteoles on the upper half of the peduncle:
- Leaves 1.5—2 mm. long, closely imbricate, almost as wide as long; petals with a claw almost twice as long as the blade (99) *squamosa*
- Leaves 2—3 mm. long, loosely imbricate, much narrower in proportion to the length; petals with a claw $\frac{3}{4}$ as long as the blade (88) *cedrimontana*
- × × Leaves linear, oblong, linear- or elliptic-oblong, sometimes slightly widened towards the base or apex:
- + Leaves pilose-ciliate:
- Leaves navicular, keeled, pilose only at the margin and on the keel; petals 6 mm. long (110) *sedifolia*
- Leaves neither navicular nor keeled, at first entirely pilose beneath; petals 3 mm. long (90) *alpina*
- + + Leaves not pilose-ciliate:
- Leaves persistently hispid; sepals lanceolate or ovate-lanceolate:
- Leaves with 4 rows of glands beneath; petals with a claw $1\frac{1}{2}$ times as long as the blade (100) *hispida*
- Leaves not as above; petals with a claw $\frac{1}{2}$ as long as the blade . . (103) *capensis*

- Leaves glabrous or $\pm$ hispid, usually becoming glabrous; sepals ovate or detoid-ovate:
- Ovary with subquadrate retuse processes (106) *microcalyx*
 - Ovary with oblong obtuse processes:
 - Leaves very obtuse, usually rather fleshy (109) *crassifolia*
 - Leaves obtuse, subacute or acute, not at all fleshy (108) *giftbergensis*
- |||Leaves mostly widest below the middle:
- ¶¶Petals with a claw 2—3 times as long as the blade:
 - Leaves dorsally compressed, much greater in width than in depth (115) *imbricata*
 - Leaves not as above:
 - Leaves not rough with tubercles or glands on the entire lower face (111) *lancifolia*
 - Leaves rough with tubercles or glands on the entire lower face:
 - Leaves cordate or subcordate at the base; petals with a claw 3 times as long as the blade (118) *asperifolia*
 - Leaves rounded or shortly tapered at the base; petals with a claw 2—2½ times as long as the blade:
 - Leaves with a widely ovate blade (122) *gnidiiflora*
 - Leaves with an obovate or oblanceolate blade:
 - Leaves rounded and with large glands beneath, closely involute at the margin (123) *krakadouwensis*
 - Leaves $\pm$ keeled and with small glands beneath, not closely involute at the margin (124) *bicolor*
- ¶¶¶Petals with a claw less than twice as long as the blade:
- × Inflorescences lateral or at the forking of the stems:
 - Branchlets pubescent; leaves pilose at the margin and on the keel; peduncles subtended by bracteoles (120) *leptospermoides*
 - Branchlets puberulous; leaves at first minutely glandular-puberulous beneath; peduncles with bracteoles at the middle (121) *roodebergensis*
 - × × Inflorescences at the ends of the branchlets:
 - + Flower-clusters with conspicuous scarious involucreal leaves:
 - Leaves not distinctly thickened at the margin (126) *cephalodes*
 - Leaves distinctly thickened at the margin:
 - Leaves linear-oblong, pilose at the apex; ovary hispid on the apex (127) *involucrata*
 - Leaves lanceolate, not pilose on the apex; ovary glabrous (128) *sabulosa*
 - + + Flower-clusters without scarious involucreal leaves:
 - Sepals with a prominent keel decurrent on the calyx-tube:
 - Peduncles puberulous; calyx tuberculate-scabrid, with short glandu-

- lar hairs; staminodes linear-oblong at the middle, tapering to a slender apex, ciliate in the lower half (129) *affinis*
- Peduncles glabrous or sparsely pilose; calyx neither tuberculate-scabrid nor with glandular hairs; staminodes not tapering to a slender apex, villous at the middle . . (130) *hirta*
- ○ Sepals not as above:
- △ Leaves navicular, not greater in width than in depth at the base:
- Petals with a claw shorter than the blade:
- Leaves linear-lanceolate, acute; staminodes 1.5 mm. long, linear-ob lanceolate, attenuate (112) *Joubertiana*
- Leaves lanceolate-oblong, obtuse; staminodes 2.5 mm. long, oblong-linear, slightly widened in the lower half . . (113) *florulenta*
- □ Petals with a claw as long as or longer than the blade:
- Ovary without processes . . (119) *salina*
- Ovary with processes:
- Leaves pilose at the margin and on the keel; ovary pilose on the apex . . (101) *capitata*
- Leaves not pilose at the margin or on the keel; ovary glabrous (102) *collina*
- △ △ Leaves not navicular, greater in width than in depth at the base:
- Leaves with the nerve swollen behind the apex:
- Leaves straight or $\pm$ incurved in the upper half:
- Leaves ovate; bracteoles basal; staminodes geniculate at the middle; ovary with obovate processes . . (114) *geniculata*
- Leaves narrower; bracteoles not basal; staminodes not geniculate; ovary with oblong processes:
- Leaves with stalked glands on the margins; peduncles and sepals with stalked glands (67a) *propinqua*
- Leaves, peduncles and sepals not as above . . (67) *serpyllacea*
- Leaves $\pm$ recurved in the upper half:
- Staminodes 1.75—3.25 mm. long; ovary with rotund or widely obovate processes (68) *Cerefolium*
- Staminodes 3.5—4.5 mm. long; ovary with oblong or obovate processes . . (81) *ciliaris*
- □ Leaves with the nerve not distinctly swollen behind the apex:

- Ovary with rotund processes:
 Branchlets resinous; sepals
 1.5 mm. long, ovate or
 elliptic-oblong (117) *alaris*
 Branchlets not resinous; sepals
 0.5—0.75 mm. long, ro-
 tund (70) *minuta*
 Ovary with oblong or obovate
 processes:
 Stamines mostly linear, ta-
 pering in the lower half,
 with a conspicuous gland
 behind the apex . . . (116) *juniperifolia*
 Stamines mostly widest in
 the lower half, with a
 small gland on the apex . . (103) *capensis*
- ****Carpels usually 2:
 †Bracteoles not arising on the peduncle:
 †Leaves with a distinctly thickened, cartilaginous and
 smooth margin without glands:
 Sepals distinctly mucronate (36) *spinosa*
 Sepals not mucronate:
 Leaves with a recurved mucronate apex . . (42) *recurvifolia*
 Leaves neither recurved nor mucronate at the
 apex (44) *planifolia*
 ††Leaves not as above:
 Leaves distinctly incurved, usually with stalked
 glands on the margin (40) *blaerioides*
 Leaves not as above:
 Leaves with a distinct, sharp and spreading mu-
 cro (34) *pungens*
 Leaves not as above:
 §Leaves slightly recurved:
 Leaves with glands scattered on the lower
 face; stamines linear (45) *ovalifolia*
 Leaves with glands confined to the margin;
 stamines oblong-lanceolate (46) *clavispala*
 §§Leaves not recurved:
 Flowers 1 or 2 together in the axils of the
 upper leaves:
 Branchlets densely villous; flowers solitary (134) *umbonata*
 Branchlets puberulous; flowers in pairs . . (132) *kougaense*
 Flowers many together in terminal or axil-
 lary clusters:
 Leaves mostly widest below the middle,
 often subcordate (39) *elegans*
 Leaves mostly widest at or above the mid-
 dle (38) *Mundtii*
 ††Bracteoles arising on the peduncle, sometimes vestigial:
 †Stamines resembling the petals:
 Petals lanceolate or ovate-lanceolate . . . (54) *Dregeana*
 Petals distinctly widest above the middle:
 Leaves flat, slightly concave or slightly convex
 above:
 Petals with an oblanceolate-linear blade . . (56) *stenopetala*
 Petals with an obovate or oblong-elliptic blade (57) *linifolia*
 Leaves distinctly concave above:
 Leaves distinctly pilose-ciliate (59) *tulbaghensis*
 Leaves glabrous or sometimes at first ciliate . . (58) *virgata*
 ††Stamines not resembling the petals:
 §Stamines partly adnate to the petals:
 Leaves linear, with closely involute margins . . (60) *Esterhuyseniae*

- Leaves wider, not involute at the margin:
- Bracteoles arising on the upper half of the peduncle; sepals very obtuse (93) *adnata*
 - Bracteoles arising on the lower half of the peduncle; sepals not very obtuse (94) *humilis*
- §§Staminodes free:
- Petals with a claw 3 times as long as the blade. (125) *longicornu*
 - Petals with a claw at most twice as long as the blade:
 - Petals oblanceolate (69) *bicornuta*
 - Petals consisting of a distinct blade and claw:
 - Staminodes widest in the lower half (103) *capensis*
 - Staminodes widest in the upper half, or at least as wide as in the lower half:
 - Ovary with rotund processes:
 - Petals with a claw as long as or almost as long as the blade (104) *glabrata*
 - Petals with a claw from as long to twice as long as the blade (107) *bisulca*
 - Ovary with oblong or obovate processes:
 - ||Petals with a claw half as long as the blade:
 - Peduncles glabrous, with ciliate bracteoles on the lower half. (84) *abrupta*
 - Peduncles pilose, with pilose bracteoles on the upper half (62) *Stokoei*
 - |||Petals with a claw up to $1\frac{1}{2}$ times as long as the blade:
 - Sepals with a conspicuously wide membranous margin (105) *corymbosa*
 - Sepals not as above:
 - Leaves slightly concave, flat or slightly convex above (80) *ciliata*
 - Leaves distinctly concave above, incurved at the apex, distinctly swollen behind the apex (65) *robusta*
- ****Carpels usually 1:
- Flowers axillary (133) *unicarpellata*
 - Flowers in terminal clusters:
 - Leaves 5—8 mm. long; peduncles exceeding 2 mm. in length; sepals oblong or ovate-lanceolate (61) *pubigera*
 - Leaves 2—5 mm. long; peduncles not exceeding 1 mm. in length; sepals spatulate, obovate or obovate-oblong:
 - Leaves ovate or lanceolate-ovate; petals with a claw $1\frac{1}{2}$ —2 times as long as the blade (92) *stilbeoides*
 - Leaves cordate or orbicular; petals with a claw $\frac{1}{2}$ as long as the blade (131) *dentata*

1. **A. Bathii** comb. nov. **Barosma Bathii** Dümmer in *Ann. Bolus Herb.* iii, 1 (1920)!

Branchlets pubescent or puberulous. Leaves 1.5—3 cm. long, opposite or alternate, erect-spreading, elliptic, obovate- or ovate-elliptic, obtuse, rounded or widely cuneate at the base, flat or almost so, sparsely warted above, coarsely crenulate, glabrous or sparsely pubescent above and beneath, with a prominent median nerve and many secondary nerves, with large marginal glands and many smaller glands scattered beneath.

Flowers 2 or 3 together at the ends of short axillary forked branchlets bearing much reduced leaves or without leaves. Peduncles 2 mm. long, puberulous, subtended by ovate bracteoles. Sepals 1.25 mm. long, ovate, very obtuse, bluntly convex beneath, ciliate. Petals 4—4.5 mm. long, obovate, rounded at the apex, widely cuneate at the base, slightly concave above, glabrous, with several large glands beneath. Stamens glabrous. Staminodes 2.5 mm. long, oblong, terminating in a conical gland, concave above, glabrous. Disk fleshy, crenulate. Ovary glabrous, with 5 carpels bearing erect-spreading elliptic or obovate fleshy processes furrowed on the inner face. Style glabrous, slightly recurved in the upper half.

CERES DIV.: between "Rosendalfontein" and Visgat, *Pillans* 9643; Olifants River Mts., ridge south of Groen, *Esterhuysen* 13430.—CLAN-WILLIAM DIV.: Cederberg, *Bath* in Bolus Herb. 15691 (type), *Pocock* 657; Krakadouwberg, *Esterhuysen* 7485, 15017, *Stokoe* in S. Afr. Mus. Herb. 59371; Northern Cederberg, peak near Koupoort, *Esterhuysen* 12178; mountain above Hot Baths, *Compton* 5377.

Flowering July—Nov.

2. **A. insignis** comb. nov. *Barosma insignis* *Compton in Journ. S. Afr. Bot.* xi, 106 (1945)!

A robust shrub usually 120—130 cm. high, entirely glabrous. Branchlets red-brown, ridged below the petioles. Leaves mostly 2.5—3.5 cm. long, alternate, erect-spreading, oblanceolate-elliptic or narrowly obovate, acute or subacute, very often apiculate, rounded at the base, slightly convex above, slightly thickened at the margin, obscurely crenulate or entire, with a conspicuous primary and several secondary nerves beneath, with marginal glands mostly 15—18 at each side, and with scattered glands evident above and beneath. Flowers 1—3 together at the ends of short axillary branchlets bearing much reduced leaves. Peduncles 5—8 mm. long, subtended by lanceolate bracteoles. Sepals 3 mm. long, widely ovate, acute, obtusely convex behind the apex. Petals 1—1.5 cm. long, ovate-lanceolate, tipped with a small gland, with a subquadrate basal claw, slightly concave above, with several conspicuous glands about the middle. Stamens with stout filaments. Staminodes 4 mm. long, linear-lanceolate, tipped with a large conical gland, fleshy, slightly concave above. Disk fleshy, crenulate. Ovary with 5 carpels bearing obovate fleshy processes with the margin increasingly incurved from the middle to the base, so as to resemble an inverted equine hoof. Style glabrous.

CERES DIV.: Elands Kloof, banks of stream, *Compton* 12494 (type, in Kirstenbosch Herb., cotype in Bolus Herb.), *Leighton* 1267; Wabooms

River, *Compton* 16750, *Lewis* in S. Afr. Mus. Herb. 56536; Upper Olifants River Valley, *Visgat*, bank of river, *Esterhuysen* 13401.

Flowering Sept.—Nov.

3. ***A. distans*** sp. nov.; ramulis glabris; foliis alternatis vel oppositis ellipticis-vel obovatis-oblongis mucronatis glabris, supra paulum concavis; floribus axillaribus; pedunculis glabris ebracteolatis; sepalis ovatis acutis glabris, margine membranaceis; petalis obovatis cuspidatis, basin versus attenuatis; staminibus valde recurvis; staminodis lanceolatis, apice glandula rotundata notatis; ovario 5-loculari glabro, cornubus obovatis; stylo glabro.

Shrubs about 70 cm. high, entirely glabrous. Leaves mostly 2—2.5 cm. long, alternate or opposite, erect-spreading, elliptic- or obovate-oblong, tapering shortly to a mucro, widely cuneate at the base, slightly concave above, usually very slightly crenulate at the margin, conspicuously nerved beneath, with small scattered and larger marginal glands mostly 5—11 on each side. Flowers solitary at the ends of very short axillary leafless branchlets. Peduncles 2.5 mm. long, subtended by lanceolate bracteoles. Sepals 2 mm. long, ovate, acute, membranous at the margin, obtusely convex beneath. Petals 6.5 mm. long, obovate, recurved and acutely cuspidate at the apex, attenuate towards the base, slightly concave above, distinctly nerved beneath. Stamens much recurved. Staminalodes 3.25 mm. long, lanceolate, concave above, terminating in a large rotund gland. Disk fleshy, crenulate. Ovary with 5 carpels bearing transversely obovate processes with closely involute margins and resembling an inverted equine hoof.

CLANWILLIAM DIV.: Pakhuis Mt., *Esterhuysen* 7420, 7699, 8013 (type, in Bolus Herb.), 14989.

Flowering Sept. The affinity is with *A. insignis* from which it is distinguished by the marginal glands on the leaves being fewer and by the processes on the ovary not being expanded. The name alludes to the wide spacing of the marginal glands on the leaves.

4. ***A. ovata*** comb. nov. *Diosma pulchella* *Houttuyn*, *Pflanz. Syst.* iii, 288, t. 21, f. 2 (1775) non *Linn.* ***D. ovata*** *Thunb. Prodr.* 43 (1794)!; *ej. Diss. Diosm.* 13 (1797); *Willd. Sp. Pl.* i, 1139 (1798); *Andrews, Bot. Rep.* t. 464 (1807); *Pers. Syn. Pl.* i, 247 (1808); *Ait. Hort. Kew*, ed. 2, ii, 33 (1811); *Sims in Curt. Bot. Mag.* t. 1616 (1814); *Roem. and Schultes, Syst. Veg.* v, 442 (1819); *Thunb. Fl. Cap. ed. Schultes* 227 (1823); *DC. Prodr.* i, 714 (1824); *Spreng. Syst. Veg.* i, 785 (1826). ***D. lanceolata*** *Thunb. Prodr.* 43; *ej. Diss. Diosm.* 13; *Willd. Sp. Pl.* i, 1137 excl. syn. omn.; *Ait. Hort. Kew*, ed. 2, ii, 31; *Thunb. Fl. Cap. ed. Schultes* 226. ***D. oblonga*** *Thunb.*

in Hoffm. *Phytogr. Blätter* i, 23 (1803); Roem. and Schultes, *Syst. Veg.* v, 460; Thunb. *Fl. Cap. ed. Schultes* 227 (1823); Spreng. *Syst. Veg.* i, 785. **Bucco ovata** Wendl. *Collect.* 62, t. 20 (1805); Roem. and Schultes, *Syst. Veg.* v, 442. **Diosma graveolens**, **D. punctata** Licht. ex Roem. and Schultes, *Syst. Veg.* v, 461 (1819). **D. linifolia** Lodd. *Bot. Cab.* iv, t. 400 (1819) non Licht. **D. dioica** Ker in Edwards' *Bot. Reg.* t. 502 (1820); Spreng. *Syst. Veg.* i, 785 (1825). **D. glandulosa**, **D. orbicularis** Hort. ex Bartl. and Wendl. *Diosm.* 110 (1824) non Thunb. **Barosma angustifolia** Bartl. and Wendl. *Diosm.* 116. **B. dioica** Bartl. and Wendl. *Diosm.* 114. **B. oblonga** Bartl. and Wendl. *Diosm.* 112; Sond. in Harv. and Sond. *Fl. Cap.* i, 396 (1860). **B. ovata** Bartl. and Wendl. *Diosm.* 109; Sond. *op. cit.* 395. **Bucco hamata** Wendl. ex Bartl. and Wendl. *Diosm.* 114. **Diosma stenophylla** Spreng. *Syst. Veg.* i, 785. **D. spartiifolia** Steud. in *Flora* xiii, 550 (1830). **Barosma graveolens** G. Don. *Gen. Syst.* i, 786 (1831). **B. scoparia** Eckl. and Zeyher, *Enum.* 103 (1835)!; Sond. *op. cit.* 396, excl. syn. *microphylla*. **B. ternata**, **B. pauciflora** Eckl. and Zeyher l. c. **B. Eckloniana** Bartl. in *Linnaea* xvii, 363 (1843)! **B. Kraussiana** Buch. ex Meissn. in *Flora* xxvii, 303 (1844); Meissn. in Krauss, *Beitr.* 40 (1846)! **B. setuliflora** Delporte in *Mem. Acc. Torino* ser. 2, xiv, 408, t. 9 (1854). **B. acutata** Sond. *op. cit.* 395. **B. lanceolata** Sond. *op. cit.* 397, incl. vars.; Engl. in Engl. and Prantl, *Pflanzenfam.* iii, §4, p. 148 (1896); De Wildeman, *l.c. Select. Hort. Thén.* vi, t. 222 (1908). **B. Peglerae** Dümmer in *Kew Bull.* 1912, p. 326!

A much branched shrub usually 1—2 m. high, with puberulous branchlets, or sometimes glabrous on strips immediately below the leaves. Leaves mostly 0.5—1.5 cm. long, opposite, ternate, alternate or scattered, sometimes crowded, erect-spreading, orbicular, rotund, ovate, obovate, elliptic, elliptic-oblong, oblong, linear-oblong, lanceolate, oblanceolate or lanceolate-linear, $\pm$ obtuse or truncate, often abruptly recurved at the apex, rounded or cuneate at the base, flat or $\pm$ convex above, $\pm$ revolute at the margin, or with the margin recurved to the nerve, with large or small scattered glands beneath, usually $\pm$ gland-crenate, glabrous or $\pm$ puberulous above and beneath. Flowers 1—4 together, axillary. Peduncles 0.5—8 cm. long, usually on a very short or sometimes conspicuous bracteate stipe, glabrous or puberulous, subtended by oblong or ovate bracteoles. Sepals 0.75—2 mm. long, widely or deltoid-ovate, ovate, ovate-lanceolate or lanceolate, obtuse, sometimes slightly keeled beneath, entirely puberulous or glabrous, or puberulous only above. Petals 3.5—4.5 mm. long, elliptic, ovate- or obovate-elliptic, very obtuse, widely cuneate at the base, slightly concave above, glabrous, or minutely ciliolate at the apex, sometimes sparsely pubescent above on the nerve, with many glands beneath. Stamens glabrous. Staminodes 1.5—2.5 mm. long, oblong, oblanceolate- or lanceolate-

oblong, lanceolate, lanceolate-linear or linear, tipped with a conical gland, slightly concave above, ciliate, often pubescent above and beneath, with a prominent nerve beneath. Disk crenulate. Ovary glabrous, studded with glands, with 5 carpels bearing oblong, obtuse, truncate or emarginate processes. Style glabrous, often recurved.

South Africa: without precise locality, *Cooper* 1757, *Drège* 7082, *Hesse*, *Mund*, *Niven* (type of *Barosma acutata* in Stockholm), *Sparrman*, *Thom*, *Thunberg*.—**Basutoland:** *Moyena*, *Ashton* in *Bolus* Herb. 17372, *Dieterlen* 1345.—**Cape Province:** ALBANY DIV.: near Grahamstown, *Bennie* 78, *Britten* 2768; *Cross* 11, *Daly and Cherry* 953, *Daly and Sole* 29, 284, *Dyer* 48, 181, *Galpin* 77, *Gane* 14, *Guthrie* 3306, *Long* 211, *Rogers* 27446, 28686, *Schönland* 111, *Story* 2575; Howieson's Poort, *Schönland* 755; near Collingham, *Britten* 5415; Bothasberg, *MacOwan* 1183; hill above drift in Botha's River, *Britten* 5524; Trumpeter's Drift, *Dyer* 521; Kurukuru River, *Burchell* 5313; between the end of Zwartwater Poort and the east end of Zwartwater Poort Berg, *Burchell* 3444.—ALBERT DIV.: Klaklazole Berg, *Cooper* 1757.—ALEXANDRIA DIV.: Alicedale, *Marloth* 4099, 4271, 10907.—BATHURST DIV.: Trappe's Valley, *Sidey* 1908; Hopewell, *Acocks* 11065, 11069, *Compton* 19830.—CALEDON DIV.: Swartberg, *Bolus* 9165, 9911, *Ecklon and Zeyher* 804, 805, *MacOwan* in Herb. Austr.-Afr. 1417, *Marloth* 4261, 7108, 9217, *Schlechter* 5547, *Wordsworth* in *Bolus* Herb. 14021; Ezeljagt, *Salter* 4656; near Greyton, *Esterhuysen* 5080; mountains at Genadendal, *Bolus* 7379, *Burchell* 7830; Happy Valley, *Bond* 987; near Villiersdorp, base of De Doorns, *Esterhuysen* 1907; Sir Lowry's Pass, *Schlechter* 7820.—EAST LONDON DIV.: about 14 miles north of East London, *Courtenay Latimer* in East London Mus. Herb.—GEORGE DIV.: The Wilderness, *Compton* 7572, 10757, 15760, *Levyns* 776, 5017, *Walgate* 267; west side of Kayman's River, *Burchell* 5793; Hooge Kraal Pass, *Fourcade* 5702; Touw River, *Fourcade* 6419; Victoria Bay, *Thorn* in S. Afr. Mus. Herb. 51689; Bergplaats, *Fourcade* 5256; Silver River, *Schlechter* 5878; Montagu Pass, *Schlechter* 5800, 5844, *Zinn* in S. Afr. Mus. Herb. 54811; Cradock Mt., *Burchell* 5925, *Galpin* 3865; Keurbooms River, *Compton* 7177, *Fourcade* 5240; near Bergplaats, in forest, *Parker* 4425.—HERSCHEL DIV.: Majuba Nek, Sterkspruit, *Hepburn* 10.—HUMANSDORP DIV.: Humansdorp, *Kennedy* 892, *Rogers* 2954, *Thode* A714; Loeie Plantation, *Dix* 80, 235; *Clarkson*, *Thode* A768; slopes above Witte Els Bosch, *Fourcade* 795, *Hutchinson* 1399; Riet Vlei, *Esterhuysen* 6654A; Witte Els Bosch Peak, *Esterhuysen* 6738, 6761, 6775, 6775A; Storms River Bridge, *Story* 2851; Kromme River, near Goed Gelooft Drift, *Fourcade* 2284; Ratelbosch, coast cliffs, *Fourcade* 250; Kruisfontein Mt., *Galpin* 3866; Blaauwkrans Kloof, *Marloth* 13049; between Jeffrey's Bay and Ferreira Town, *Gillett* 2327.—KENTANI DIV.:

Kentani, *Pegler* 33 (type of *Barosma Peglerae* in Kew Herb., cotype in Bolus Herb.), 1249.—KING WILLIAM'S TOWN DIV.: Mt. Coke, *Sim* 1406.—KNYSNA DIV.: near the Knysna River Ford, west side, *Burchell* 5531; Barrington, *Compton* 7551; Belvedere, *Duthie* 37; Deep Walls, *J. Phillips* 28, *Rodin* 1170; Matjes River Mouth, *Gillett* 2044; Hoogberg, *Keet* 1065; Knysna Heads, *Galpin* 9564; 2 miles east of Keurbooms River, *Hutchinson* 1372; 2 miles east of Hoogkraal River, *Salter* 6763; "Forest Hall," *Newdegate* in S. Afr. Mus. Herb. 14422; Plettenberg Bay, *Rogers* 27885.—KOMGHA DIV.: near Komgha, Gwaku River, *Flanagan* 272; Kei Mouth, *Flanagan* 199.—LADISMITH DIV.: toll near Ladismith, *Marloth* 2933; Touws Berg, *Levyns* 6151; Roodeberg, *Esterhuysen* 17185; Huis River Pass, *Marloth* 12148; Molenaars Berg, *Compton* 20136; Klein Swartberg, *Marloth* 4003; below Toeverkop, *Esterhuysen* 13961.—LAINGSBURG DIV.: north base of the Witteberg, Whitehill, *Compton* 2974, 6592.—MACLEAR DIV.: between Elliot and Maclear, *Bolus* 24448; Gatberg, *Brauer* 516.—MONTAGU DIV.: hills near The Baths, *Compton* 18433, *Lewis* in S. Afr. Mus. Herb. 59370, *Page* in Bolus Herb. 15631; Keur Kloof, *Bond* 319, *Esterhuysen* 1839, *Walgate* 953; Rabiesberg, *Compton* 5789; Keisiesberg, *Compton* 18499, *Esterhuysen* 23424, *Lewis* in S. Afr. Mus. Herb. 59369, *Walgate* in Bolus Herb. 23424; between Montagu and Triangle, *Michell* 30; Langeberg, *Levyns* 6509.—MOSSEL BAY DIV.: Langeberg, "Langfontein", *Muir* 2463; near Vryer's Berg, *Muir* 1379; Riet Vlei, *Muller* in S. Afr. Mus. Herb. 25869.—MOUNT FLETCHER DIV.: near Kenegha Drift Hotel, *Acoks* 12197.—OUDTSHOORN DIV.: Rust en Vrede, *Dyer* 86.—PORT ELIZABETH DIV.: near Port Elizabeth, *I. L. Drège* 252, *Kemsley* 144, *Long* 207, *Tyson* 2188; Parson's Vlei, *Holland* 3861, *Long* 209, 210, 213; Walmer, *Paterson* 2537, 3165; between Port Elizabeth and Witte Klip, *Rodin* 1035; upper part of Maitland or Leadmine River, *Burchell* 4614; valley near Burchell, *A. H. Bolus* in Guthrie Herb. 3761.—PRINCE ALBERT DIV.: Seven Weeks Poort, *Compton* 4041, 7417, *Marloth* 2980, *Phillips* 1415.—QUEENSTOWN DIV.: Gwatyu Farm, mountain side, *Galpin* 8299; Andriesberg, *Galpin* 2024.—RIVERSDALE DIV.: Langeberg, *Muir* 2909; summit of Aasvogelberg, *Muir* 924, 1110; Garcia's Pass, *Muir* 3643; *Phillips* 315, *Sidey* 1771.—ROBERTSON DIV.: hills near Robertson, *Lamb* 321; MacGregor, *Galpin* 10072.—STOCKENSTROOM DIV.: Chumiesberg, *Ecklon and Zeyher* 812 (cotype of *Barosma pauciflora* in Stockholm).—STUTTERHEIM DIV.: south slope of Mt. Kemp, *Dyer* in Albany Mus. Herb.; Dohne Mt., *Galpin* 2459.—SWELLENDAM DIV.: between Sparrbosch and Tradouw, *Drège* 7083.—TSOLO DIV.: Ntywenka Pass, *Acoks* 12173.—UITENHAGE DIV.: Van Staadens, *Ecklon and Zeyher* 809 (cotypes of *Barosma scoparia* in Kew Herb., S. Afr. Mus. Herb. and Stockholm), 810, 811 (cotypes of *B. ternata* in Kew Herb., S. Afr. Mus.

Herb. and Stockholm), *I. L. Drège* 700, *Paterson* 2333, *West* 456, *Zeyher* 340, 1007, 2157; *Witte Klip*, *Holland* 3865; Bethelsdorp, *Paterson* 116; Longmore Forest Reserve, *Long* 1040; Adow, *Ecklon and Zeyher* 816, *Zeyher* 212, 371; Elands River Mts., *S. Afr. Forest Dept. Herb.* 2231.—UNIONDALE DIV.: Long Kloof, *Castlenau* 75; hills near Haarlem, *Burchell* 5028, *Esterhuysen* 6921, *Fourcade* 2104; *Schönland* 3110, *Thode* A2434; hills south of Kamanassi, *Fourcade* 4679; Kamanassi Mts., *Esterhuysen* 16452; Helpmekaar Peak, *Compton* 4589, 10454, *Esterhuysen* 4572; Formosa Peak, *Thorne* in *S. Afr. Mus. Herb.* 59372; Twee Rivieren, *Esterhuysen* 7059; Mannetjieberg, *Esterhuysen* 6451; Outeniqua Mts., near Joubertina, *Esterhuysen* 10645; headwaters of Waagenboom River, *Fourcade* 2660.—WORCESTER DIV.: near Worcester, *Cooper* 1668 partly, 1757; Omklaarberg, *Andrae* 369; mountains east of Hex River, *W. Dod* 4046, *Esterhuysen* 10334, *Tyson* 628; Bain's Kloof Mts., *Esterhuysen* 1975; Brandvlei Mt., *Compton* 8832, *Esterhuysen* 1949; Witte Poort, *Esterhuysen* 1808; Keeromsberg, *Esterhuysen* 9196; Audensberg, *Marloth* 2441; Molenaarsberg, *Esterhuysen* 14068.—XALANGA DIV.: Cala, at the reservoir, *Royffe* 199, *O'Brien* 135.—Natal:—Dumisa, *Rudatis* 414; 9 miles north of Port Edward, *Acocks* 10913; Port Shepstone, *Letty* 213; Oribi Flats, *McLean* 564; Murchison, *Wood* 304; Inanda, *Wood* 136; Westville, *Wood* 8609; summit of Table Mt., *Krauss* 466 (cotypes of *Barosma Kraussiana* in Kew Herb. and Stockholm); near Durban, Springfield, ? collector in Natal Herb. 17817; Field's Hill, *Evans* 604.—Pondoland:—St. John's, *Lindstrom* in *Bolus Herb.* 24456; Ntsubane Forest Station, *Galpin* 10971, *Louw* in *S. Afr. Forest Dept. Herb.* 7867, *Fraser* in *Bolus Herb.* 24457; Lusikisiki, *v. d. Merwe* 2527.

• Flowering Jan.—Dec. A very variable and widely distributed species with forms which have the appearance of distinct species, but it has not even been possible to separate them into varieties, since they are all connected by intermediates. The variation in the size and shape of the leaves, sepals and staminodes is no greater than in several other widely distributed species. The widest leaves with the largest glands prevail in the south-western districts. The leaves and glands diminish in size eastwards and northwards.

5. ***A. crenulata*** comb. nov. *Diosma crenulata* Linn. Cent. Pl. ii, 11 (1755); *ej. Amoen. Acad.* iv, 308 (1759). ***D. crenata*** Linn. Syst. Nat. ed. 10, p. 11 (1758); *Thunb. Prodr.* 43 (1794); *ej. Diss. Diosm.* 14 (1797); *Murr. Syst. Veg.* 250 (1797) excl. syn. Berg.; *Willd. sp. Pl.* i, 1138 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Thunb. Fl. Cap. ed. Schultes* 227 (1823); *Pappe, Med.* 5 (1850); ed. 2, p. 7 (1857). ***D. latifolia*** Andrews, Rep. t. 33 (1797) non L.f.; *Lodd. Bot. Cab.* iii, t. 290 (1818); *Spreng.*

Syst. Veg. i, 785 (1825). **D. serratifolia** Curt. *Bot. Mag.* t. 456 (1799); *Vent. Malm.* t. 77 (1803-05); *Ait. Hort. Kew.* ed. 2, ii, 32; *Lodd. Bot. Cab.* iv, t. 373 (1819); *Burchell, Travels* i, 479 (1822); *DC. Prodr.* i, 714 (1824); *Spreng. Syst. Veg.* i, 785 (1825). **Parapetalifera odorata** Wendl. *Collect.* i, 50, t. 15 (1805). **Barapelutiflora** (sic) **serrata** Wendl. *Collect.* i, 92, t. 34. **Barosma odorata** Willd. *Enum. Hort. Berol.* 257 (1809). **Baryosma odorata**, **B. serratifolia** Roem. and Schultes, *Syst. Veg.* v. 448 (1819). **Bucco crenata** Roem. and Schultes *op. cit.* 444. **Adenandra cordata**, **A. serratifolia** Link, *Enum. Hort. Berol.* i, 239 (1821). **Barosma serratifolia** Willd. *Enum. Hort. Berol.* 257 (1809); *Bartl. and Wendl. Diosm.* 98, t.B.f.6 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 393 (1860); *Schnizlein, Iconogr.* iv, t. 251 (1866-70); *Engler in Engl. and Prantl, Pflanzenfam.* iii, §4, p. 148 (1896); *Sim, Forest Fl. of Cape Colony* 155 (1907); *Marloth, Fl. S. Afr.* ii, §1, f. 68 (1925). **Diosma odorata** DC. *Prodr.* i, 714 (1824). **Barosma crenata** Sweet, *Hort. Brit.* ed. 1, p. 89 (1826). **Agathosma latifolia** Loud. *Hort. Brit.* 85 (1830). **Barosma crenulata** Hook. in Curt. *Bot. Mag.* t. 3413 (1835); *Sond. op. cit.* 393; *Schnizlein l. c.*; *Engler l. c.*; *Edmonds and Marloth, Elem. Bot. S. Afr.* 142 (1897); *Henslow, S. Afr. Fl. Pl.* 116 (1903); *Sim l. c.*; *Stoneman, Plants and their Ways in S. Afr.* ed. 2, pp. 138, 324 (1915); *Marloth, op. cit.* p. 104, t. 36E. **B. Eckloniana** O. Berg in *Bot. Zeitung* ix, 911, t. xii, ff. o—q (1853) non Bartl. and Wendl.

Shrub up to 2.5 m. high with glabrous or partly puberulous branchlets. Leaves mostly 1.5—3.5 cm. long, opposite, erect-spreading, lanceolate, ovate- or oblong-lanceolate, sometimes ovate or obovate, obtuse or truncate, cuneate at the base, flat or slightly convex above, serrate, with small scattered glands beneath and larger glands at the margin, conspicuously nerved beneath, glabrous. Flowers solitary at the ends of short, often leafless axillary branchlets. Peduncles 1.5 mm. long, glabrous or sparsely puberulous, subtended by lanceolate bracteoles. Sepals 3.5 mm. long, ovate-lanceolate, obtuse, ciliolate, obtusely keeled. Petals 7—9 mm. long, ovate, obtuse, cuneate and ciliate at the base, slightly concave above, usually with many glands beneath near the nerve. Stamens with filaments villous on the lower half. Staminodes 3—3.5 mm. long, lanceolate, obtuse, concave above, membranous, ciliolate, with a gland behind the apex. Disk fleshy, crenulate. Ovary with 5 carpels having a row of minute stalked glands on the margins, and bearing ovate-rotund dorsally compressed processes involute at the base and sparsely pubescent above. Style villous on the lower half, recurved in the upper half.

South Africa: without precise locality, Drège 7079, 7079a, 7079b.—**CALEDON DIV.:** between Moordenaars Kloof and Langkloof, *Stokoe* in

S. Afr. Mus. 59367; kloof west of Rooskraalberg, *Esterhuysen* 2660; Genadendal, *Roser* in National Herb. 15419; Hottentots Holland Mts., *Ecklon and Zeyher* 800; Dwarsberg, *Stokoe* 8505.—CERES DIV.: gorge west of Ceres, *Hutchinson* 572.—PAARL DIV.: valley north of Limietberg, *Esterhuysen* 1638; Wemmershoek Mts., *Wasserfall* 558.—RIVERSDALE DIV.: waterfall at Garcia's Pass, *Burchell* 7051, *Muir* 462, *Phillips* 363.—STELLENBOSCH DIV.: upper Lourens River Valley, *Parker* 3893; Jonker's Hoek, *Marloth* 9381; Sneeuwkop, *Marloth* 486b.—SWELLENDAM DIV.: Tradouw Pass, Klein Poort, *Marloth* 486, 8613; Voormansbosch, *Zeyher* 2173; above Duyvelsbosch and Grootvadersbosch, *Ecklon and Zeyher* 802; mountains near Swellendam, *Kennedy* in Bolus Herb. 1394, in MacOwan Herb. 2414; Lemoenshoek Peak, *Esterhuysen* 10490; Tradouwsberg, S. Afr. Forest Dept. Herb. 1723.—TULBAGH DIV.: mountains near Tulbagh, *Ecklon and Zeyher* 800; Winterhoek Mts., *Reynhardt* in Bolus Herb. 24458.—WORCESTER DIV.: Wabooms River, *Esterhuysen* 8957; Bain's Kloof, *Morton* in Acocks Herb. 1932.

Flowering June—Nov.

6. ***A. betulina*** comb. nov. ***Hartogia betulina*** Berg. *Pl. Cap.* 67, (1767). ***Diosma betulina*** Thunb. *Prodr.* 43 (1794); *ej. Diss. Diosm.* 13 (1797); *Willd. Sp. Pl.* i, 1140 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Thumb. Fl. Cap. ed. Schultes* 227 (1823); *DC. Prodr.* i, 714 (1824); *Spreng. Syst. Veg.* i, 785 (1825). ***Bucco betulina*** Roem. and Schultes, *Syst. Veg.* v, 443 (1819). ***Diosma crenata*** Lodd. *Bot. Cab. t.* 404 (1820) non Linn. ***Barosma betulina*** Bartl. and Wendl. f. *Diosm.* 102 (1824); *Sonder in Harv. and Sond. Fl. Cap.* i, 393 (1860); *Engl. in Engl. and Prantl, Pflanzenfam.* iii, §4, p. 148 (1896); *Sim, Forest Flora of Cape Colony* 155 (1907); *Marloth, Fl. S. Afr.* ii, §1, f68 (1925).

Branchlets warted, glabrous. Leaves mostly 1—2 cm. long, opposite or alternate, erect-spreading, slightly recurved at the apex, obovate, sometimes very widely so, obtuse, cuneate towards the base, serrate, glabrous, concave up the middle, convex at the margin, with a conspicuous primary nerve and often with secondary nerves beneath, with marginal and scattered glands beneath. Flowers solitary at the ends of very short axillary branchlets bearing very much reduced leaves. Peduncles about 1 mm. long, glabrous, with lanceolate ciliolate bracteoles near the base. Sepals 2·5—3 mm. long, lanceolate or ovate-lanceolate, obtuse, ciliolate, puberulous above on the upper half, obtusely keeled beneath. Petals 0·8—1 cm. long, ovate-lanceolate or elliptic-oblong, very obtuse, cuneate in the lower half, glabrous or sparsely pubescent above, $\pm$ ciliolate or ciliate, slightly swollen behind the apex, with many glands beneath near the nerve. Stamens with pubescent filaments. Staminodes 3·5

mm. long, oblong-lanceolate, obtuse, tapering towards the base, gland-tipped, concave above, ciliate, with the margin involute near the apex. Disk fleshy, crenulate. Ovary with 5 carpels having stalked glands at the sides and bearing obovate-rotund dorsally compressed processes sparsely pubescent above ciliate and with marginal swellings at the base. Style recurved, pilose on the lower half.

CERES DIV.: Elands Kloof Pass, *Barker* 3789, *Bond* 624; *Compton* 7077, 16206, *Esterhuysen* 3138, *Hafstrom and Acocks* 785.—CLANWILLIAM DIV.: Brakfontein, *Ecklon and Zeyher* 801, *Drège* 7079c, 7080; below Uitkyk Pass, *Acocks* 5689; above Uitkyk Pass, *Gillett* 4100; Vogel Vlei, *Schlechter* 7919; Cederberg, *Thode A* 1972, 2148; Algeria, *Galpin* 10535; Schimmelberg, *Pillans* 9088; Olifants River Mts., *Schlechter* 5115; Middelberg *Leipoldt* 886; Krakadouw Peak *Stokoe* in S. Afr. Mus. Herb. 59365; mountain above Warm Baths *Stephens* in Percy Sladen Mem. Exped. 7116.—PIKETBERG DIV.: plateau on Capitein's Kloof Mt. *Pillans* 7880; hills below Mouton's Vlei, *Pillans* 7348, *Marloth* 11472, 11473, 11474; Versveld's Pass, *Bond* 1029, *Esterhuysen* 5511; Vogel Vei, *Schlechter* 7919; top of Kapitein's Kloof, *Salter* 8160; Piketberg Mt., *Bolus* 13528, *Guthrie* 2566.—TULBAGH DIV.: mountains near Tulbagh, *Guthrie* 2720; Winterhoek, *Bolus* 5325.

Flowering June—Nov.

7. **A. namaquensis** nom. nov. **Barosma Niveni** *Sond. in Harv. and Sond. Fl. Cap. i*, 398 (1860)!

Branchlets puberulous. Leaves 0·6—1·2 cm. long, opposite, erect-spreading, elliptic- or ovate-oblong, or lanceolate-ovate, subacute or acute, rounded at the base, flat or very slightly concave above in the upper half, with scattered and marginal glands and a slightly impressed nerve beneath, thickened and scarcely crenulate at the margin, warted above, minutely puberulous above and beneath, becoming glabrous. Flowers 1 or 2 together in the axils of the upper leaves. Peduncles 4—6 mm. long, puberulous, subtended by linear-oblong bracteoles. Sepals 2·5 mm. long, lanceolate- or deltoid-ovate, gland-tipped, puberulous, with large glands beneath. Petals 4·5 mm. long, elliptic-oblong, obtuse, cuneate at the base, glabrous. Stamens with filaments sparsely pubescent on the lower half. Staminodes 2 mm. long, linear-oblong, obtuse, gland-tipped, incurved at the margin, sparsely pilose beneath. Disk crenulate. Ovary with 5 carpels bearing clavate rigidly pubescent processes, glabrous elsewhere. Style sparsely pubescent throughout.

South Africa: without precise locality, *Niven*.—NAMAQUALAND: Modderfonteinsberg, Roodeberg and Ezelskop, *Drège* 7128 (type, in Stockholm, cotype in Kew Herb.); summit of Sneeuwkop, *Pearson and Pillans*

in Sladen Mem. Exped. 5787; Khamiesberg near Leliefontein, *Levy's* 4002.

Flowering Oct.—Dec.

8. ***A. adenandriiflora*** Schltr. in *Engl. Bot. Jahrb.* xxvii, 160 (1899)!; *Dümmer in Fed. Rep.* xi, 334 (1912). ***A. formosissima*** *Dümmer in Ann. Bolus Herb.* iii, 58 (1912)!

A shrublet with rigidly wiry, puberulous and $\pm$ pilose branchlets. Leaves 0.7—1.2 cm. long, alternate, ovate, obovate, elliptic, ovate-lanceolate or sometimes subrotund in outline, obtuse, rounded at the base, slightly convex above, slightly revolute at the margin, coriaceous, minutely scabrid above and beneath, minutely puberulous above, sparsely pilose on the margin, sometimes villous above and beneath in the juvenile state. Flowers in terminal clusters. Peduncles 0.8—1.3 cm. long, densely pilose, sometimes bearing stalked glands, subtended by widely obovate bracteoles. Sepals 4—8 mm. long, oblong, widely oblong, lanceolate-oblong or ovate-lanceolate, acute or subacute, densely silky villous, often bearing stalked glands. Petals 0.9—1.1 cm. long, widely oblanceolate, very obtuse, sometimes sparsely pubescent above, pubescent beneath. Stamens glabrous. Staminalodes 4.5—5 mm. long, linear, furrowed above, conspicuously nerved and pilose beneath, with a large crateriform gland at the apex. Ovary tubercled and setose or glabrous, bearing stalked glands on the apex, with 5 carpels furrowed and umbonate above. Style glabrous.

CERES DIV.: locality and collector unknown, *Bolus Herb.* 15849 (type of *A. formosissima*); Ertjiesland Kloof, *Compton* 16090; Koude Bokkeveld, *Schlechter* 8903 (cotypes of *A. adenandriiflora* in Albany Mus., *Bolus Herb.*, National Herb.); Baviaansberg, *Stokoe* 4547; Gydouw, *Compton* 18766, *Leighton* 2228; Zwart Ruggens, Stompiesfontein, *Levy's* 1863.—LAINGSBURG DIV.: Tweedside, on mountain, *Marloth* 10822, *Barker* in *Bolus Herb.* 20603, *Compton* 3999, 5909; Witteberg, *Compton* 3046, 3322, 5880, 7989, 12185, 13983, *Esterhuysen* 5147; Phisantekraal, *Compton* 21093.—WORCESTER DIV.: Hex River Mts., above Buffelshoek Twins, *Esterhuysen* 8394; Bonteberg, Eikenbosch Hoek, *Compton* 9944, *Esterhuysen* 3654 A; hills near Touws River, *Marloth* 2998.

Flowering Jan.—Nov.

9. ***A. craspedota*** *E. Mey. ex Sond. in Harv. and Sond. Fl. Cap.* i, 415 (1860)!; *Dümmer in Fed. Rep.* xi, 334 (1912). ***Hartogia craspedata*** *O. Kze. Rev. Gen.* i, 101 (1891). ***A. craspedota*** var. ***eglandulosa*** *Dümmer in Ann. Bolus Herb.* iii, 54 (1920)! ***A. denticulata*** *Dümmer l. c.!* ***A. utilis*** *Dümmer op. cit.* 55!

Branchlets puberulous. Leaves 0·6—1·5 cm. long, alternate, erect-spreading, obovate-oblanccolate, obovate-elliptic or obovate, obtuse or subacute, cuneate or rounded at the base, slightly convex and glabrous or puberulous above, with a thickened and slightly revolute margin, usually crenulate at the margin, glabrous, or puberulous and with scattered glands beneath, with a slightly raised nerve. Flowers in terminal clusters or a few together in the axils of the upper leaves. Peduncles 6—9 mm. long, glabrous or puberulous, often with stalked glands, subtended by bracteoles. Calyx widely rounded or truncate at the base; tube widely cyathiform; sepals 2·5—4 mm. long, reflexed, deltoid-ovate, obtuse, slightly concave above near the apex, glabrous or $\pm$ puberulous beneath, sometimes with stalked glands. Petals 4·5—6 mm. long, elliptic, obtuse, cuneate at the base, concave above near the apex, puberulous at the base. Stamens glabrous. Staminodes 2—2·5 mm. long, oblanceolate-oblong, widening slightly and emarginate at the apex, with a large stalked gland in the sinus, almost flat and pubescent above, ciliate. Ovary with stalked glands on the apex, with 5 carpels bearing $\pm$ clavate processes often refuse and setose at the apex. Style striate, glabrous.

South Africa: without precise locality, *Marloth* 7792 (type of *A. craspedota* var. *eglandulosa* in National Herb., cotype in Bolus Herb.).—CALVINIA DIV.: Van Rhyu's Pass, *Levyus* 4087.—CLANWILLIAM DIV.: Blaauwberg, *Drege* (cotypes of *A. craspedota* in Bolus Herb., Kew Herb., S. Afr. Mus. and Stockholm); Giftberg, *Phillips* in Sladen Mem. Exped. 7524; Koudeberg, *Bolus* 8955 (type of *A. denticulata* in Kew Herb., cotype in Bolus Herb.); Pakhuis Pass, *Esterhuysen* 3141, 7410; Krakadouw Peak, *Esterhuysen* 7490, 8049; between Koupoort and Boontjieskloof, *Esterhuysen* 12195; Grootberg, *Esterhuysen* 4154; Waboom River Mts., *Compton* 6512; Cederberg, *Pattison* in Bolus Herb. 13734 (type of *A. utilis* in Bolus Herb.).—TULBAGH DIV.: Great Winterhoek, *Marloth* 2335.

Flowering Sept.—Dec.

10. *A. Phillipsii* Dümmer in Ann. Bolus Herb. iii, 57 (1920)!

A dwarf very much branched and rather compact shrublet with pubescent branchlets. Leaves 3—5 mm. long, alternate, erect-spreading, obovate or oblong-obovate, very obtuse, tapering shortly at the base, comparatively thick, concave above, rounded and with a few large glands beneath, patently pubescent, becoming glabrous. Flowers few, in terminal clusters. Peduncles 2—4 mm. long, pubescent, ebracteolate. Sepals 2—2·5 mm. long, oblong, obtuse, fleshy, concave above, rounded and with several conspicuous glands beneath, entirely pubescent. Petals 3·5 mm. long, oblanceolate-oblong, obtuse, slightly concave above, entirely pubescent.

Stamens with filaments pubescent except at the base and near the apex. Staminodes 1 mm. long, oblong, acute, gland-tipped, pubescent on the middle. Disk pubescent within. Ovary pilose, with 5 carpels bearing rotund processes. Style villous almost to the apex.

CERES DIV.: Matroosberg, near Laken Vlei, in rock crevices, *Phillips* 1962 (type, in S. Afr. Mus. Herb.); Conical Peak, rock crevices, *Stokoe* 8309.

Flowering Dec., Jan. The most remarkable character is the presence of hairs on the inner face of the disk.

11. **A. Marlothii** *Dümmer* in *Ann. Bolus Herb.* iii, 51 (1920)! **Barosma Marlothii** *Schltr. ex Marl. Wiss. Ergebn. Deutsch. Tiefsee Exped.* ii, 111, 175 (1908) *absque descr.* **Agathosma perplexa** *Dümmer op. cit.* 52!

Branchlets puberulous. Leaves 0.5–1.4 cm. long, alternate, erect-spreading, elliptic, narrowly obovate, ovate or lanceolate, acute or obtuse, rounded or subcuneate at the base, slightly concave, flat or slightly convex above, scabridous and glabrous or puberulous above and beneath, thickened, gland-crenate and slightly recurved at the margin, with the nerve $\pm$ prominent beneath, usually with 2 rows of slightly raised glands near the nerve. Flowers in axillary or terminal clusters. Peduncles 0.5–1 cm. long, glabrous or minutely puberulous, ebracteolate. Sepals 1.75–2.5 mm. long, elliptic- or deltoid-oblong, deltoid-ovate or subrotund, very obtuse, concave above in the upper half, often membranous at the margin, glabrous or puberulous above and beneath, with large glands, reflexed during the flowering period. Petals 2.5–3.5 mm. long, elliptic, oblong-elliptic, oblanceolate-elliptic or subrotund, obtuse, cuneate or with a short linear claw at the base, glabrous, or rarely puberulous beneath on the upper half. Stamens glabrous, or sparsely pubescent at the base. Staminodes 0.75–1.5 mm. long, elliptic, elliptic-oblong or oblong-lanceolate, tipped with a gland, usually sparsely ciliate, sometimes sparsely pubescent above. Ovary gland-tubercled, with 5 carpels bearing oblong, often retuse and setose processes. Style glabrous, or sparsely setose on the lower half.

CERES DIV.: Michell's Peak, *Esterhuysen* 14765; Olifants River Mts., ridge south of Groen, *Esterhuysen* 13425; near Wagenboom River, Skurfsdeberg, *Schlechter* 10163 (type of *A. perplexa* in *Bolus Herb.*); Roodeberg, *Esterhuysen* 1475, *Stokoe* 8293.—CLANWILLIAM DIV.: near Citrusdal, Donker Kloof, *Stokoe* 9155; Elands Kloof, *Lewis* in *Bolus Herb.* 22050; Cederberg, *Stokoe* 8292; Grootberg, *Esterhuysen* 4154; Sandfontein Peak, *Esterhuysen* 13867; Sneeuwberg, near summit, *Esterhuysen* 13848; Tafelberg, kloof at the base, *Esterhuysen* 13805; Pakhuis, peaks at the head of the pass, *Esterhuysen* 14982.—TULBAGH DIV.: Great Winterhoek, *A.*

Bolus in Guthrie Herb. 4187 (type of *A. Marlothii* in Bolus Herb., cotype in Kew Herb.).—WORCESTER DIV.: Mostert's Hoek Twins, *Esterhuysen* 9865, *Wasserfall* 801; Waaihoek Mts., *Esterhuysen* 8291; Buffels Hoek Area, *Esterhuysen* 8430; Matroosberg, *Marloth* 2223, 2358, *Esterhuysen* 14192; Milner Peak, *Esterhuysen* 14230, 14907; Keeromsberg, *Esterhuysen* 9200.

Flowering Sept.—Jan. The most remarkable feature of this species is the wide variation in the shape of the leaves. The reflected sepals provide a character for distinction from allied species.

12. **A. Acocksii** sp. nov.; ramulis puberulis; foliis oblanceolato-oblongis vel elliptico-oblongis obtusis scabridis, supra convexis, margine revolutis glandulosis; floribus terminalibus; pedunculis pilosis ebracteolatis; sepalis ovatis vel ovato-lanceolatis obtusis, subtus pubescentibus; petalis late ovatis oblongo-ovatis vel elliptico-oblongis, basin cuneatis, infra medium ciliatis; staminibus infra medium sparse ciliatis; staminodis oblongo-fusiformibus, supra concavis, subtus pubescentibus, apice glandula notatis; ovario 5-loculari tuberculato ecornuto; stylo piloso.

A shrublet with slender puberulous branchlets having shortly stalked glands scattered on the younger parts. Leaves 4—8 mm. long, alternate, erect-spreading or spreading, oblanceolate-oblong or elliptic-oblong, obtuse, rounded at the base, convex and furrowed above, $\pm$ revolute at the margin, with a much enlarged prominent nerve beneath, scabrid and minutely hispid above and beneath, often with small stalked glands beneath. Flowers in terminal clusters, usually 3 or 4 together. Peduncles 0·7—1 cm. long, pilose, sometimes with stalked glands, without bracteoles. Sepals 4—4·5 mm. long, ovate or ovate-lanceolate, obtuse, flattened, slightly concave towards the apex, glabrous above, pubescent and sometimes with stalked glands beneath. Petals 4·5—6 mm. long, widely ovate, oblong-ovate or elliptic-oblong, obtuse, cuneate and puberulous above at the base, often very sparsely puberulous beneath, ciliate on the lower half. Stamens with filaments sparsely ciliate on the lower half. Staminodes 2 mm. long, oblong-fusiform in outline, acute, widely based, concave above, pubescent beneath, with a long-stalked apical gland. Ovary tubercled, with 5 carpels without processes. Style pilose except towards the apex. Fruit with hispid gland-tipped tubercles.

CERES DIV.: Karoo Poort, Acocks 1665.—WORCESTER DIV.: Bonteberg, Eikenbosch Hoek, south slopes, *Esterhuysen* 3654 (type, in Bolus Herb.), *Compton* 9948; Touws River, sandstone hill, *Levy* 851.

Flowering Sept., Oct. The affinity is with *A. Phillipsii* Dümmer but with the leaves convex above except for a furrow, and the ovary being glabrous.

13. **A. Pattisonae** *Dümmer in Ann. Bolus Herb.* iii, 54 (1920)!

Branchlets pubescent. Leaves 5—8 mm. long, alternate, erect-spreading, obovate-elliptic or obovate, acute or obtuse, cuneate at the base, slightly concave scabrid and somewhat puberulous above, with evident secondary nerves, gland-crenate, pubescent and with few glands beneath. Flowers in terminal clusters. Peduncles about 1 cm. long, sparsely pubescent, ebracteolate. Sepals 2 mm. long, deltoid-ovate, obtuse, rounded and pubescent beneath. Petals 8.5 mm. long, oblong-elliptic, obtuse, cuneate at the base, pilose beneath on the upper half, ciliate above the middle, with many conspicuous glands beneath. Stamens sparsely pubescent on the filaments. Staminodes 6 mm. long, oblong, with a large obovate apical gland, ciliate, distinctly nerved beneath. Ovary glabrous, with 5 carpels bearing short conical processes.

CLANWILLIAM DIV.: Cederberg, *Pattison* in *Bolus Herb.* 13733 (type, in *Bolus Herb.*, cotype in *Kew Herb.*).

Flowering Dec.

14. **A. Rehmanniana** *Dümmer in Fed. Rep.* xi, 336 (1912)!

Branchlets minutely puberulous. Leaves 0.6—1 cm. long, alternate, erect-spreading, ovate or elliptic, obtuse, rounded at the base, slightly concave or flat above, thickened at the margin, gland-crenate, with an impressed nerve and many scattered glands beneath, very minutely puberulous above and beneath. Flowers in terminal and lateral clusters. Peduncles 5—6 mm. long, minutely puberulous, ebracteolate. Sepals 3 mm. long, ovate-lanceolate, obtuse, with conspicuous glands and minutely puberulous beneath, reflexing after the flowering. Petals 4.5 mm. long, elliptic-oblong, obtuse, widely cuneate at the base, concave above at the apex, glabrous, with many large glands beneath. Stamens glabrous. Staminodes 1.5 mm. long, obtuse, apiculate, concave above, ciliate on the lower half. Ovary glabrous, with 5 carpels bearing linear-oblong, obtuse processes. Style glabrous. Fruit rugose, with linear processes 4 mm. long.

GEORGE DIV.: Montagu Pass, *Rehmann* 147 (type in *Brit. Mus.*, cotype in *Kew Herb.*).

In some respects this is closely related to *A. ovata*, of which it may be a form.

15. **A. pentachotoma** *E. Mey. ex Sond. in Harv. and Sond. Fl. Cap.* i, 405 (1860)! **Hartogia pentachotoma** *O. Kze. Rev. Gen.* i, 101 (1891). **Agathosma decora** *Dümmer in Ann. Bolus Herb.* iii, 49 (1920)! incl. vars. **Buchu et pseudohybrida**.

Branchlets puberulous. Leaves 2.5—8 mm. long, alternate, erect-

spreading, ovate, rotund-ovate, lanceolate-ovate or obovate, acute, subacute or obtuse, rounded at the base, slightly concave above, gland-toothed at the margin, widely convex and with occasional glands beneath, glabrous, $\pm$ pubescent beneath, or ciliate at the base. Flowers in terminal clusters. Peduncles 0.75—2 mm. long, glabrous or hispidulous, subtended by narrowly linear or oblanceolate-linear ciliate bracteoles. Sepals 1—3.5 mm. long, oblong- or deltoid-ovate or rotund, obtuse or subacute, membranous at the margin, ciliate, sometimes with stalked glands at the margin, rounded or obtusely keeled beneath on the upper half, with a gland behind the apex. Petals 2.5—5.5 mm. long, glabrous; blade obovate or subrotund; claw 1—2 times as long, narrowly linear. Stamens glabrous. Staminodes 1.75—4.75 mm. long, narrowly linear, oblanceolate or oblanceolate-oblong in the upper half, obtuse or retuse, tapering downwards, glabrous, with a conspicuous apical gland. Disk crenulate. Ovary tubercled on the upper half, with 5 carpels bearing oblong, truncate, dorsally compressed processes furrowed above, sparsely setose about the apex, with 2 apical glands. Style $\pm$ pubescent on the lower half. Fruit with closely set tubercles tipped with red glands.

CERES DIV.: Michell's Peak, swamp, *Esterhuysen* 14764; Matroosberg, near Laken Vlei, *Phillips* 1965 (type of *A. decora* in S. Afr. Mus. Herb.), 1966 (type of var. *Buchu* in S. Afr. Mus. Herb.), swampy ground, *Stokoe* 8302, *A. Bolus* in Guthrie Herb. 4395 (type of var. *pseudohybrida*).—PAARL DIV.: Haalhoek Sneeuwkop, swamp, *Esterhuysen* 9576; Upper Wellington Sneeuwkop, *Esterhuysen* 8650, 12812.—WORCESTER DIV.: Du Toit's Kloof, *Drège* (cotypes of *A. pentachotoma* in Kew Herb., S. Afr. Mus. Herb. and Stockholm); Witteberg Peak, *Esterhuysen* 23965; Waaihoek, *Esterhuysen* 8301, 9931, 15121; Hex River Mts., shale band below Milner Peak, *Esterhuysen* 7800, 9361, 14245; Shale Peaks, *Esterhuysen* 8737, 8740; foot of Sentinel, *Esterhuysen* 8750; Buffelshoek Peak, *Esterhuysen* 8544; Fonteinjesberg, *Esterhuysen* 10982.

Flowering Nov.—March.

16. *A. rubricaulis* Dümmer in *Fed. Rep.* xi, 404 (1912)!

A much branched shrub about 1 m. high, with pubescent, often reddish, branchlets. Leaves 3—4 mm. long, alternate, erect-spreading, ovate, subacute, rounded at the base, slightly incurved at the apex, slightly concave and sometimes puberulous above, gland-crenate, slightly convex, rugulose and pubescent beneath, with large glands confined to the margin. Flowers in terminal clusters. Peduncles 1.5—2 mm. long, glabrous, subtended by bracteoles. Sepals 2.25 mm. long, linear-lanceolate, subacute, concave above, slightly keeled beneath, ciliate near the base, or glabrous, with a conspicuous gland behind the apex. Petals 3.5

mm. long; blade obovate-elliptic, very obtuse; claw almost as long, slender, ciliate near the base. Stamens glabrous. Staminodes 2.5—2.75 mm. long, slender, widening upwards into an oblanceolate blade, ciliate on the lower half, with a large gland behind the apex. Disk readily splitting into 5 emarginate segments. Ovary with 5 or rarely 4 carpels bearing rounded hispid processes. Style pubescent except near the base and apex.

CLANWILLIAM DIV.: without precise locality, *Wallich* (type, in Kew Herb., cotype in Stockholm); Cederberg, Engelman's Kloof, *Esterhuysen* 8076; shale band south of Tafelberg, *Esterhuysen* 7880; Cederberg Peak, marsh, *Esterhuysen* 7588.

Flowering June—Sept. This species resembles and probably is nearly related to *A. pentachotoma*.

17. **A. Barnesiae** *Compton in Trans. Roy. Soc. S. Afr.* xix, 296 (1931)!

Branchlets minutely puberulous. Leaves 5—9 mm. long, alternate, erect-standing, often slightly incurved, oblong-elliptic, ovate or lanceolate-oblong, obtuse, apiculate, shortly cuneate, rounded or subcordate at the base, concave and minutely puberulous above, thickened and revolute at the margin, with glands only at the revolute margin, glabrous or minutely puberulous beneath. Flowers in terminal clusters. Peduncles 1—1.5 mm. long, stout, glabrous, ebracteolate. Sepals 2.5—3 mm. long, imbricate, apiculate, glabrous or $\pm$ ciliate, glandular on the upper half; the outer widely obovate, rotund or orbicular, obtuse; the inner obovate-oblong or elliptic. Petals 4—5 mm. long, oblanceolate or oblong-oblanceolate, obtuse, sometimes bluntly apiculate, glabrous or ciliate. Stamens glabrous. Staminodes 3—3.5 mm. long, lanceolate, cuneate at the base, membranous, ciliate, bilobed at the apex, with the nerve projecting into the sinus and bearing an apical gland. Disk with a narrow free margin. Ovary coarsely tubercled, with 5 carpels bearing conical-oblong processes. Style glabrous. Fruit hispid on the apex.

LAINGSBURG DIV.: Witteberg, summit, *Compton* 3178 (type, in Bolus Herb.), 12222, 21119, *Taylor* 1241; south slope, *Compton* 5894.—PRINCE ALBERT DIV.: Seven Weeks Poort, north side, *Andreae* 1289, *Stokoe* 1843; Krasberg, summit, *Stokoe* 8493.

Flowering Oct.—Dec.

18. **A. divaricata** sp. nov.; ramulis puberulis; foliis oppositis ovatis subacutis, supra paulum concavis minute tuberculatis, margine paulum revolutis; floribus terminalibus; pedunculis pubescentibus ebracteolatis; sepalis ovato-lanceolatis acutis pubescentibus; petalis oblongo-lanceolatis vel elliptico-oblongis glabris; staminibus glabris; staminodis linearibus glabris, apice glandula conica notatis; ovario 5-loculari glabro vel supra medium hispido, cornubus rotundatis; stylo glabro.

A low divaricately branched shrublet with puberulous branchlets. Leaves 3—6 mm. long, opposite, ovate, subacute, rounded at the base, slightly concave and with minute hair-tipped tubercles above, slightly revolute at the margin, with large glands beneath at the margin, with hair-tipped tubercles and large glands on a prominent nerve, elsewhere glabrous and almost smooth. Flowers solitary or in pairs at the ends of the branchlets. Peduncles 0.8—1 cm. long, pubescent, ebracteolate. Sepals 1.5—1.75 mm. long, ovate-lanceolate, acute, rounded-convex beneath, pubescent. Petals 5 mm. long, oblong-lanceolate or elliptic-oblong, cuneate at the base, glabrous. Stamens glabrous. Staminodes 2.5 mm. long, linear, concave above, with a conical gland at the apex, glabrous. Ovary glabrous, or hispid on the upper half, with 5 carpels bearing rotund processes. Style glabrous.

CERES DIV.: Southern Cederberg, spur of Hondverbrand Ridge, *Esterhuysen* 12726; Gideon's Kop, *Esterhuysen* 13891; Zwart Ruggens, "Stompiesfontein," *Levy's* 1882, 1882a.—CLANWILLIAM DIV.: Cederberg, Tafelberg, *Esterhuysen* 14393 (type, in Bolus Herb.).

Flowering Sept.—Nov. A possible affinity is with *A. spinescens* Dümmer.

19. *A. spinescens* Dümmer in *Fed. Rep.* xi, 336 (1912)! *A. Froemblingii* Dümmer *op. cit.* 335!

Branchlets puberulous, becoming rigid and spine-like when dry. Leaves usually 5—7 mm. long, sometimes 1 cm. long, opposite or alternate, erect-spreading, ovate, lanceolate or rarely rotund, acute, subacute or obtuse, rounded at the base, slightly concave above, thickened at the margin, gland-crenate, with a few glands beside a raised nerve, glabrous or puberulous. Flowers in terminal clusters or often 2 together on very short branchlets. Peduncles about 5 mm. long, pubescent, ebracteolate. Sepals 3—4 mm. long, widely ovate or elliptic, obtuse or subacute, ciliate, puberulous above and beneath or glabrous. Petals about 6 mm. long, oblong- or elliptic-ovate, very obtuse, cuneate at the base, glabrous, or puberulous above at the base. Stamens glabrous. Staminodes 2—2.5 mm. long, oblong-elliptic, tapering to a large terminal gland, dorsally compressed, pubescent above about the middle. Ovary papillate, glabrous, with 5 carpels bearing oblong processes somewhat bi- or trilobed, deeply furrowed above. Style glabrous. Fruit tubercled.

CALVINIA DIV.: Nieuwoudtville, *Leipoldt* in Bolus Herb. 23957; Willem's River, *Leipoldt* 865; Oorlogs Kloof, *Lewis* in Bolus Herb. 19804.—CERES DIV.: Zwart Ruggens, *Levy's* 1781.—CLANWILLIAM DIV.: near Pakhuis, *Leipoldt* in Bolus Herb. 20761; Bidouwberg, *Schlechter* 8683 (type of *A. spinescens* in Kew Herb., cotypes in Albany Mus., Bolus

Herb., Natal Herb., S. Afr. National Herb. and Stockholm); between Pakhuis and Wupperthal, Bidouw River, Diamond Drift, *Leipoldt* 3721; Cederberg, Matjesrivier, *Wagener* 178.

Flowering Aug., Sept. The type of *A. Froemblingii* is in Kew Herbarium. It was received from Dr. H. Bolus in June, 1898, without a record of the locality or collector. No portion was retained in the Bolus Herbarium. The leaves are unusually small.

20. ***A. foetidissima* Hortul. ex Steud. Nom. ed. 2, i, 35 (1840). *Barosma foetidissima* Bartl. and Wendl. Diosm. 118 (1824); *Sond. in Harv. and Sond. Fl. Cap. i, 398 (1860); Bailey, Standard Cycl. Hort. i, 454 (1914). *Diosma foetidissima* Spreng. Syst. Veg. i, 785 (1825). *Agathosma Burchellii* Dümmer in Kew Bull. 1912, p. 328!***

Branchlets minutely puberulous or almost glabrous. Leaves 0.5—1.2 cm. long, opposite, alternate or ternate, erect-spreading or spreading, linear or narrowly lanceolate-oblong, obtuse, rounded at the base, convex and puberulous above, furrowed up the middle, with a closely revolute margin bearing many large glands. Flowers in terminal clusters and several together in the axils of the upper leaves. Peduncles 4—6 mm. long, glabrous or puberulous, sometimes with small stalked glands, subtended by oblong-lanceolate bracteoles. Calyx glabrous or puberulous; sepals 1.5—2.5 mm. long, reflexed, widely ovate, ovate-obovate or elliptic-oblong, obtuse, submembranous in the lower half, with a large gland behind the apex. Petals 2.25—3.5 mm. long, widely oblanceolate, elliptic- or obovate-oblong, obtuse, ciliate at the base, with a gland behind the concave apex. Stamens with filaments sparsely pubescent at the middle. Staminodes 1—2 mm. long, lanceolate or oblanceolate-oblong, acute, slightly concave and pubescent above or ciliate, with a minute apical gland. Disk crenulate. Ovary glabrous, glandular on the apex, with 5 carpels bearing small rotund processes. Style glabrous or puberulous except near the apex. Fruit with large tubercles.

LADISMITH DIV.: Ladismith, *Marloth* 3977.—RIVERSDALE DIV.: dry hills near Speigel River, *Burchell* 7205 (type of *A. Burchellii* in Kew Herb.); hills near Riversdale, *Bolus* 11238, *Muir* 2955; Sandfontein, *Muir* 4506; Corenti River Farm, *Muir* 5065; "Oakdale," *Levy* 2854, 3552.—ROBERTSON DIV.: dry hills near Robertson, *Lamb* 253.—SWELLENDAM DIV.: Leuw River Mts., foothills near Swellendam, *Stokoe* 8291.

Flowering April—Oct. This species has a combination of some of the characters which have been used in distinguishing between *Agathosma* and *Barosma*.

21. ***A. microcarpa* comb. nov. *Barosma microcarpa* Sond. in Harv. and Sond. Fl. Cap. i, 398 (1860)!**

Branchlets puberulous. Leaves 0·8—1·5 cm. long, alternate, opposite or ternate, erect-spreading, lanceolate- or linear-oblong (elliptic-oblong when expanded), obtuse, rounded at the base, convex above, with a revolute margin often covering the lower face, minutely puberulous, with glands on the margin and scattered beneath. Flowers 1—4 together, axillary, distinctly below the ends of the branchlets. Peduncles 4—5 mm. long, puberulous, subtended by oblong obtuse bracteoles. Sepals 1·25—1·5 mm. long, lanceolate or ovate-lanceolate, obtuse, recurved, puberulous, ciliate, with many glands. Petals 3—4 mm. long, oblong-ovate or elliptic, obtuse, cuneate at the base, slightly concave above, sparsely puberulous beneath. Stamens glabrous. Staminodes 1·25—1·75 mm. long, lanceolate or oblanceolate, tipped with a minute gland, ciliate, sparsely pubescent beneath. Disk crenulate. Ovary studded with glands, puberulous on the apex, with 5 carpels without processes. Style sparsely puberulous on the lower half. Fruit with stalked glands on the apices of the carpels.

LADISMITH DIV.: Ladismith, *Marloth* 3977.—MOSSEL BAY DIV.: Little Brak River, *Lewis* in Bolus Herb. 24466.—RIVERSDALE DIV.: Gouritz River, *Drège* 7084 (type, in Stockholm), 7084a; Sandfontein, *Muir* 4506; *Albertinia*, *Muir* 1950.

Flowering June—Jan.

22. **A. cordifolia** sp. nov.: ramulis pubescentibus; foliis alternatis patentibus vel reflexis cordatis vel reniformibus subacutis, supra paulum convexis glabris; floribus terminalibus; pedunculis minute puberulis ebracteolatis; sepalis subrotundis ciliolatis; petalis anguste obovatis vel ellipticis glabris, infra medium unguiculatis; staminibus glabris; staminodis linearibus, infra medium filiformibus; ovario 5-loculari, cornubus obovatis vel oblongis sparse hispidulis; stylo pubescente.

Usually 40—50 cm. high, much branched, with slender pubescent branchlets. Leaves 1·5—2·5 mm. long and wide, alternate, spreading or slightly reflexed, cordate or reniform, subacute, slightly convex above, thickened and with large glands at the margin, slightly concave and without an evident nerve or glands beneath, glabrous, or at first hispidulous beneath. Flowers in terminal clusters. Peduncles 1 mm. long, minutely puberulous, ebracteolate. Sepals 0·75 mm. long, subrotund, very obtuse, expanded, concave above at the apex, ciliate, with a conspicuous gland behind the apex. Petals 2·5—3 mm. long, glabrous; blade narrowly obovate or elliptic, obtuse; claw almost as long, linear. Stamens glabrous. Staminodes 2 mm. long, linear in the upper half, obtuse, filiform in the lower half, glabrous, with a conspicuous gland behind the apex. Disk crenulate. Ovary with 5 carpels bearing obovate or oblong obtuse sparsely hispidulous processes. Style $\pm$ pubescent.

Flowering Oct. The locality and collector of this very distinct species are unknown. It is founded on specimens numbered 16292 (type in Bolus Herb.). These were exhibited, in a living state, in a flower show in Cape Town during October, 1919. The species was later exhibited (*Acocks* 3259, *Compton* 6326) in Ceres, again without information about the collector or locality.

23. **A. decurrens** sp. nov.; ramulis puberulis; foliis alternatis vel oppositis oblongo-lanceolatis obtusis glabris, ad medium concavis, margine revolutis, floribus terminalibus; pedunculis glabris ebracteolatis; sepalis lanceolatis glabris; petalis ellipticis vel obovato-ellipticis, basin versus cuneatis; staminibus glabris; staminodis oblanceolatis glabris, apice glandula notatis; ovario 5-loculari glabro cornubus rotundis vel subquadratis; stylo glabro.

Shrublet about 25 cm. high, with puberulous branchlets. Leaves mostly 0·8—1 cm. long, alternate or rarely opposite, erect-spreading, oblong-lanceolate, obtuse, widely cuneate or rounded at the base, concave above up the middle, revolute and with large glands at the margin, glabrous, eglandular and with a prominent nerve beneath. Flowers terminal, 1 or 2 together. Peduncles 2 mm. long, glabrous, subtended by linear bracteoles 2·5—3 mm. long. Sepals 4·5—5 mm. long, lanceolate, obtuse, thickened at the apex, hyaline at the lower half of the margin, obtusely convex, with glands widely spaced in 2 rows. Petals 5—6 mm. long, elliptic or obovate-elliptic, very obtuse, tapering in the lower half to a wide base, slightly concave above. Stamens glabrous. Staminodes 2·5 mm. long, oblanceolate, widely based, slightly concave above, glabrous, with a conical gland at the apex. Disk crenulate. Ovary glabrous with 5 carpels bearing rotund or transversely oblong fleshy processes shortly decurrent on the backs of the carpels. Style glabrous.

WORCESTER DIV.: Slanghoek Mts., Cossacks, *Esterhuysen* 8619 (type, in Bolus Herb.).

Flowering Oct. The affinity is uncertain. The name alludes to the decurrent processes on the ovary.

24. **A. subteretifolia** sp. nov.; ramulis minute puberulis; foliis ternatis alternatis vel oppositis linearibus acutis subteretibus, margine arte revolutis, primum puberulis; floribus axillaribus; pedunculis puberulis ebracteolatis; sepalis ovato-lanceolatis subacutis ciliatis, subtus puberulis; petalis oblanceolato-oblongis sparse ciliatis, infra medium paulum attenuatis ciliolatis; staminibus infra medium pubescentibus; staminodis oblongis obtusissimis emarginatis ciliatis, supra sparse pubescentibus, sino glan-

dula ornatis; ovario 5-loculari, supra medium pubescente, cornubus pubescentibus, apice orbicularibus, basin versus involutis; stylo infra medium sparse pubescente.

A much branched shrub about 40 cm. high with slender minutely puberulous branchlets. Leaves mostly 1—1.2 cm. long, ternate, alternate or opposite, erect-spreading, linear, acute, rounded at the base, subterete, with a tightly revolute margin completely covering the lower face, at first puberulous, with a row of conspicuous glands near the margin. Flowers axillary, solitary. Peduncles 2 mm. long, puberulous, sub-tended by ovate-lanceolate bracteoles. Sepals 5 mm. long, ovate-lanceolate, subacute, ciliate, densely puberulous and with a raised nerve beneath. Petals 8—9 mm. long, oblanceolate-oblong, obtuse, tapering slightly to a rounded base, concave above, ciliolate on the lower half, sparsely pilose-ciliate on the upper half, with a gland behind the apex and a raised nerve beneath. Stamens with wide-based filaments dorsally compressed and pubescent in the lower half. Staminodes 2.5 mm. long, oblong, very obtuse, emarginate, with a gland in the sinus, concave above, slightly recurved at the apex, very sparsely pubescent above, pilose ciliate. Disk inconspicuous, scarcely crenulate. Ovary pubescent on the upper half, with 5 carpels bearing pubescent processes orbicular and expanded in the upper half, with a closely involute margin forming a funnel in the lower half. Style sparsely pubescent on the lower half.

MONTAGU DIV.: Keisiesberg, *Walgate* in Bolus Herb. 23425.

Flowering Sept. A very distinct species with an appearance unlike that of any other, and without any apparent affinity.

25. **A. stipitata** sp. nov.; ramulis puberulis; foliis alternatis oppositis vel ternatis cordatis vel late ovatis convexis minute puberulis vel glabris, margine revolutis crenulatis; floribus axillaribus; pedunculis glabris ebracteolatis; sepalis late ovatis obtusis minute ciliolatis; petalis ovatis obtusis ciliatis basi cuneatis; staminibus infra medium pubescentibus; staminodis lineari-oblongis sparse pubescentibus, apice glandula ornatis; ovario conspicue glanduloso glabro 5 loculari, cornubus transverso-oblongis, apice dentatis glandula ornatis; stylo glabro.

A much branched shrub usually 60—70 cm. high, with slender puberulous branchlets. Leaves 2—4.5 mm. long, alternate, sometimes opposite or ternate, erect-spreading, spreading or reflexed, cordate or widely ovate and widely rounded or subcordate at the base, obtuse, convex and minutely puberulous above and beneath or glabrous, revolute at the margin, crenulate, with conspicuous marginal glands, indistinctly veined beneath. Flowers solitary, axillary. Peduncles 3—4 mm. long, glabrous, sub-tended by elliptic ciliolate bracteoles. Sepals 1.5 mm. long, widely ovate,

obtuse, almost flat, minutely ciliolate, with conspicuous glands beneath. Petals 4.5 mm. long, ovate, obtuse, cuneate and ciliolate at the base, slightly concave above. Stamens with filaments much recurved, pubescent above in the lower half. Staminodes 3—3.5 mm. long, linear-oblong, tipped with a large gland, concave and sparsely pubescent above. Disk crenulate. Ovary glabrous, conspicuously studded with raised glands, with 5 carpels bearing transversely oblong processes with a depression at the apex, with uneven marginal teeth and a gland in the centre. Style glabrous. Fruit very distinctly stipitate, entirely covered with prominent glands.

CALEDON DIV.: Wildepaardeberg, *Stokoe* 2736 (type, in Bolus Herb.).—

ROBERTSON DIV.: near MacGregor, Boesmans Kloof Pass, *Esterhuysen* 4472.—WORCESTER DIV.: south-east side of Brandvlei Mt., *Esterhuysen* 1941.

Flowering Oct., Nov. While having some affinity with *A. pulchella* this species is very distinct, and is remarkable for the transversely oblong processes on the ovary.

26. ***A. zwartbergense*** sp. nov.; ramulis pubescentibus; foliis ovatis vel rotundato-ovatis obtusis, supra concavis glabris, margine crassis, subtus ecarinatis sparse pubescentibus; floribus terminalibus; pedunculis pubescentibus ebracteolatis; sepalis oblongo-lanceolatis obtusis, subtus paulum carinatis pubescentibus; petalis obovatis vel elliptico-obovatis, basi cuneatis sparse pubescentibus; staminibus filamentis puberulis; staminodis lineari-lanceolatis, apice glandula rotundata notatis; ovario 5-loculari, cornubus oblongis sparse setosis; stylo pubescente.

A moderately branched shrub usually about 20 cm. high, with puberulous or pubescent branchlets. Leaves 2.5—3.5 mm. long, alternate, erect-spreading, ovate or rotund-ovate, obtuse, rounded or somewhat cordate at the base, concave and glabrous above, thickened at the margin, ecarinate, sparsely pubescent and with conspicuous glands beneath. Flowers 2—4 together in terminal clusters. Peduncles 1.5 mm. long, stout, pubescent, without bracteoles, subtended by a lanceolate obtuse bract. Sepals 2 mm. long, oblong-lanceolate, obtuse, slightly gibbous behind the apex, pubescent and somewhat keeled beneath, with a few glands beside the keel. Petals 4.5—5 mm. long, obovate or elliptico-obovate, rounded at the apex, cuneate and sparsely pubescent at the base, puberulous behind the apex. Stamens with puberulous filaments. Staminodes 3.5 mm. long, linear-lanceolate, concave above, tipped with a round gland. Ovary with 5 carpels bearing oblong sparsely setose processes. Style pubescent except near the apex.

ODTSHOORN DIV.: 5 miles west of Meiring's Poort, summit of Spitzkop, Thome in S. Afr. Mus. Herb. 50206.

Flowering Febr. This species has a distinct appearance and seems to be without any apparent affinity.

27. **A. tabularis** Sond. in Harv. and Sond. Fl. Cap. i, 403 (1860). **Hartogia tabularis** O. Kze. Rev. Gen. 102 (1891). **Barosma pulchella** var. **tabularis** Dümmer in Fed. Rep. xi, 322 (1912); Esterhuysen in Fl. Cape Peninsula 539 (1950).

Branchlets densely puberulous. Leaves 4·5—6 mm. long, alternate, erect-spreading, spreading or sometimes reflexed, ovate-lanceolate or ovate, obtuse, rounded or subcordate at the base, slightly convex above, bluntly serrate, glabrous, with an evident primary nerve and sometimes secondary nerves beneath, with 12—14 large glands confined to the margin. Flowers 1—3 together in the axils of the upper leaves. Peduncles 5—6 mm. long, glabrous, subtended by 2 oblanceolate ciliolate bracteoles. Calyx truncate at the base, glabrous. Sepals 1·5 mm. long, lanceolate-oblong, obtuse, convex beneath, with 2 rows of large glands. Petals 4·5 mm. long, glabrous; blade elliptic- or obovate-oblong, very obtuse, cuneate at the base, slightly concave above; claw half as long, linear. Stamens glabrous. Staminalodes 1·5 mm. long, narrowly linear, subacute, sparsely ciliate, eglandular. Disk conspicuously crenate, fleshy. Ovary glabrous, distinctly raised on a stout eglandular stipe, with 4 carpels closely studded with glands on the outer face, and bearing oblong, obtuse smooth processes. Style glabrous, recurved.

CALEDON DIV.: Caledon, in a ravine, Wordsworth in Bolus Herb. 14022; Zwartberg, Marloth 7109, Schlechter 5529; south-east of Kogelberg, Stokoe 8170, 8299; near Palmiet River Mouth, Levyns in Bolus Herb. 24425, Gillett 4222; mountain at Genadendal, Pappe (?) in S. Afr. Mus. Herb. 14401, Stokoe 2485; Zonder Einde Mts., Barnard 427, Stokoe in S. Afr. Mus. Herb. 58843, 58844.—CAPE DIV.: Kirstenbosch, below Contour Path, Compton 9237, 15163, Esterhuysen 363, 11799, 12295; east slopes of Table Mt., Hafstrom and Acocks 2174.—PAAERL DIV.: Wemmershoek Peak, Stokoe in S. Afr. Mus. Herb. 58841.—WORCESTER DIV.: Wilde Paardeberg, near top, Stokoe 1068.

Flowering Sept.—Dec.

28. **A. purpurea** sp. nov.; ramulis puberulis; foliis alternatis vel oppositis lanceolatis ovato- vel oblongo-lanceolatis obtusis, supra concavis glabris, subtus pubescentibus vel glabris conspicue punctatis; floribus terminalibus; pedunculis puberulis vel glabris ebracteolatis; sepalis lanceolato-oblongis obtusis valde reflexis, subtus convexis plus

minus puberulis; petalis ellipticis vel obovato-ellipticis, basi rotundatis vel subcuneatis; staminibus glabris; staminodis oblongo-lanceolatis ciliatis vel glabris, apice glandula ornatis; ovario 4-loculari tuberculato glabro vel sparse hispidulo, cornubus oblongis retusis; stylo glabro.

A much branched shrub about 60 cm. high, with puberulous branchlets. Leaves 4—5 mm. long, alternate or opposite, erect-spreading, lanceolate, ovate- or oblong-lanceolate, obtuse, rounded at the base, concave and almost smooth and glabrous above, rugose, sparsely pubescent or glabrous and with conspicuous glands scattered beneath. Flowers terminal, few together. Peduncles about 4 mm. long, puberulous or glabrous, subtended by linear bracteoles. Sepals 2 mm. long, lanceolate-oblong, obtuse, glabrous above, convex and $\pm$ puberulous beneath, considerably reflexed. Petals 3—3.25 mm. long, elliptic or obovate-elliptic, very obtuse, rounded or subcuneate at the base, glabrous, purple. Stamens glabrous. Staminodes 1.25 mm. long, oblong-ob lanceolate, dorsally compressed, ciliate or glabrous, with a wide terminal gland. Disk crenulate. Ovary tubercled, glabrous or sparsely hispidulous, with 4 carpels bearing widely oblong, truncate, retuse processes. Style glabrous.

LADISMITH DIV.: Seven Weeks Poort, north side, south aspect, *Andreae* 1185 (type, in Bolus Herb.), *Primos* 80, *Stokoe* 1871; Toeverkop, lower south slopes, *Esterhuysen* 13966.—PRINCE ALBERT DIV.: Zwartberg, *Pocock* S52; Zwartberg Pass, *Stokoe* 8491, 9289; Krevasberg, *Stokoe* 8490.

Flowering Dec. This species is one of a group in which the leaves are sometimes opposite, the flowers usually few in a cluster, and the sepals conspicuously reflexed.

29. *A. hirsuta* sp. nov.; ramulis hirsutis; follis alternatis saepe confertis ovato-lanceolatis vel ovatis subacutis, supra paulum concavis sparse pilosis, subtus pilosis; floribus axillaribus; pedunculis glabris vel sparse pilosis ebracteolatis; sepalis ovatis obtusis ciliolatis; petalis ovatis obtusissimis glabris vel basin versus ciliolatis et cuneatis; staminibus glabris; staminodis oblongo-linearibus acutis vel subtruncatis, supra medium denticulatis ciliatis; ovario 4-loculari, infra medium pubescente, cornubus oblongis pilosis; stylo glabro.

Usually 30—40 cm. high. Branchlets hirsute. Leaves 0.5—1 cm. long, alternate, often crowded, erect-spreading, ovate-lanceolate or ovate, subacute, rounded at the base, slightly concave and usually sparsely pilose above, slightly revolute and crenulate at the margin, $\pm$ pilose beneath, with a prominent nerve and conspicuous marginal glands. Flowers solitary in the axils of the upper leaves. Peduncles 3—4 mm. long, glabrous, or sparsely pilose on the upper half, subtended by rotund ciliolate bracteoles. Sepals 1.75 mm. long, ovate, obtuse or subacute, cilio-

late, obtusely convex and with conspicuous glands beneath. Petals 4.5—5 mm. long, ovate or widely ovate, rounded at the apex, cuneate at the base, slightly concave above, glabrous, or ciliolate near the base, with 1—3 conspicuous glands beneath. Stamens glabrous. Staminodes 2.5 mm. long, oblong-linear or sometimes linear, acute or sometimes almost truncate, widened or, less often, attenuate in the upper half, usually toothed and sparsely ciliate on the upper half, with a small apical gland and often with minute marginal glands near the apex. Disk crenulate. Ovary pubescent on the lower half, with 4 carpels bearing erect oblong pilose processes. Style glabrous, very recurved.

CALEDON DIV.: Somerset Sneeuwkop and vicinity, *Stokoe* 4029, 5019, 8549 (type, in Bolus Herb.), in S. Afr. Mus. Herb. 58815; between Somerset Sneeuwkop and Triplets, *Esterhuysen* 8266; Triplets, *Esterhuysen* 12503.

Flowering Nov.—Jan. The staminodes often have different shapes in different plants. They either widen or narrow upwards. This variation is not accompanied by variation of other parts to a similar degree.

30. **A. Bodkinii** *Dümmer in Ann. Bolus Herb.* iii, 59 (1920)!

Branchlets puberulous. Leaves 3—4 mm. long, alternate, erect-spreading, narrowly ovate, obtuse, rounded at the base, widely concave and puberulous or glabrous above, rounded-convex, puberulous and with large glands confined to the margin beneath. Flowers in terminal clusters. Peduncles 1—2 mm. long, puberulous, subtended by or with small linear bracteoles at the base. Sepals 1.25—1.5 mm. long, ovate or elliptic, obtuse, concave above, ciliolate, rounded and puberulous beneath, with a gland behind the apex. Petals 2.5—2.75 mm. long, glabrous; blade obovate, obtuse; claw $\frac{2}{3}$ as long, narrowly linear. Stamens glabrous. Staminodes 1.5—2.5 mm. long, narrowly oblanceolate-linear, glabrous, with an apical gland. Ovary with 4 or rarely 3 carpels bearing rounded puberulous processes. Style villous or pubescent on the lower half.

CLANWILLIAM DIV.: Cederberg, near Wupperthal, Sneeuwkop, *Bodkin* in Bolus Herb. 8958 (type, in Bolus Herb.); Cederberg, *Levy's* 2966, *Thode* A 1975; Cederberg Peak, marsh, *Esterhuysen* 7540; between Bushmans Cave and Crystal Pool, marsh, *Barnes* in Bolus Herb. 19308.

Flowering Sept.—Jan. The type consists of a single specimen, a dwarf young plant. The flowers have an ovary of 3 carpels. Later collections have shown that the usual number of carpels is 4.

31 **A. puberula** *Fourcade in Trans. Roy. Soc. S. Afr.* xxi, 99 (1932). **Diosma dubia**, **D. puberula** *Steud. in Flora* xiii, 548 (1830). **Agathosma**

gnidioides Schldl. in *Linnaea* vi, 206 (1831)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 416 (1860) incl. var.; *Dümmer in Fed. Rep.* xi, 402 (1912) incl. var. **Barosma gnidioides** Eckl. and Zeyher, *Enum.* 104 (1835). **B. mucronata**, Meissn. in *Flora* xxvii, 1, 303 (1844)!; in Krauss, *Beitr.* 40 (1846). **B. puberula** Buchinger ex Meissn. l. c. in syn. **Agathosma barosmoides** Sond. l. c.; *Dümmer* l. c. **Hartogia barosmoides**, H. **puberula** O. Kze. *Rev. Gen.* i, 101 (1891).

A much branched shrub usually 1—1·5 m. high, with puberulous branchlets. Leaves 0·8—2 cm. long, alternate, erect-spreading, linear- or oblong-lanceolate, elliptic- or oblanceolate-oblong, mucronate, tapering shortly at the base, slightly convex or flat above, somewhat thickened and gland-crenate at the margin, puberulous or glabrous, with the nerve often raised beneath, and with many glands in rows or scattered. Flowers in terminal clusters. Peduncles 5—7 mm. long, puberulous, ebracteolate. Sepals 2·5—4 mm. long, lanceolate or ovate-lanceolate, often attenuate, obtusely keeled, puberulous or glabrous except for minute cilia. Petals 4—5 mm. long, elliptic, very obtuse, cuneate and usually puberulous above at the base, often with several large glands beneath. Stamens glabrous. Staminodes 1·5 mm. long, linear-oblong or oblong-lanceolate, truncate, emarginate, with a large gland behind the apex, flat or slightly concave and puberulous above. Ovary glabrous, or pubescent on the apex, with 3 or rarely 4 carpels bearing oblong glabrous or puberulous processes. Style glabrous.

ALBANY DIV.: hills near Grahamstown, *MacOwan* 797 (type of *A. gnidioides* var. *glabrifolia* in Albany Mus. and S. Afr. Mus. Herb.); Houns- low, *Galpin* 76.—HUMANSDORP DIV.: Humansdorp, *Acocks* 13702; Enon, *Thode* A 1098, in Natal Herb. 17777; east end of Baviaans Kloof, *Levy* 9132; between Combrinck and Bok Kraal, *Fourcade* 5154; Kleinfontein, *Forest Dept.*, *Port Elizabeth* 164.—UITENHAGE DIV.: Winterhoek Mts., *Ecklon and Zeyher* 814, *Krauss* (type of *Barosma mucronata* in Stockholm), *Drege* 7089, *Fries*, *Norlindh and Weimarck* 1177; Elands River, *Zeyher* 2161; Uitenhage, *Paterson* 2333, *Thode* A 2618, *Zeyher* 371; Paarde Poort, *Bolus* 1876; Sandfontein, *Zeyher* 285 (type of *A. barosmoides* in Stockholm, cotypes in Kew Herb. and S. Afr. Mus. Herb.); Addo Road, *Long* 206.

Flowering April—Oct.

32. **A. acutissima** *Dümmer in Fed. Rep.* xi, 332 (1912)! **A. crypto- carpa** *Fourcade in Trans. Roy. Soc. S. Afr.* xxi, 98 (1932)! **A. phyllicoides** *Fourcade l. c.*

A shrublet with puberulous or glabrous branchlets. Leaves 0·5—1

cm. long, alternate, erect-spreading, linear, lanceolate or ovate-lanceolate, mucronate, rounded or subcordate at the base, convex above, revolute and glandular at the margin, puberulous or glabrous. Flowers in terminal clusters. Peduncles 2—4 mm. long, glabrous, puberulous or pubescent, ebracteolate. Sepals 1.75—2.5 mm. long, ovate-lanceolate, acute, $\pm$ ciliate or glabrous. Petals 3—4 mm. long, elliptic or ovate-elliptic, very obtuse, cuneate at the base, minutely pubescent above on the lower half. Stamens glabrous. Staminodes 1.5 mm. long, linear or lanceolate-linear, $\pm$ emarginate at the apex, concave and puberulous above, with a gland behind the apex. Ovary glandular, glabrous, with 3 carpels bearing oblong processes. Style glabrous.

HUMANSDORP DIV.: hills between Hankey and Loerie, *Fourcade* 3638 (type of *A. cryptocarpa*, in Bolus Herb.), 3638a (type of *A. phyllioides*, in Bolus Herb.); Kabeljauws River, hills east of drift, *Fourcade* 2718.—UITENHAGE DIV.: near Loerie, *Rodin* 1087; Galgebosch and Melkhoutfontein, *Burchell* 4777 (type of *A. acutissima*, in Kew Herb.).

Flowering Aug., Sept. The affinity is with *A. apiculata* G. F. W. Mey. and *A. pilifera* Schldl.

33. ***A. mucronulata*** Sond. in Harv. and Sond. Fl. Cap. i, 417 (1860)!; Dümmer in Fed. Rep. xi, 403 (1912). ***Hartogia mucronulata*** O. Kze. Rev. Gen. i, 101 (1891). ***A. mucronulata*** var. ***Rudolphii*** Dümmer in Ann. Bolus Herb. iii, 55 (1920)!

Branchlets puberulous. Leaves 3.5—6 mm. long, alternate, erect-spreading, often slightly recurved above the middle, rotund or orbicular, shortly cuneate or rounded at the base, with a $\pm$ recurved mucro, slightly concave above, usually somewhat thickened at the margin, slightly convex and with large scattered glands beneath usually extending to the margin, entirely glabrous or minutely puberulous. Flowers in terminal clusters. Peduncles 3—4 mm. long, pubescent or puberulous, ebracteolate. Sepals 2—3 mm. long, widely oblong or widely obovate, narrowing to an apiculus, widely membranous at the margin, rounded and glabrous or pubescent beneath. Petals 4—4.5 mm. long, obovate or obovate-oblong, obtuse, cuneate at the base, puberulous above near the base. Stamens glabrous. Staminodes 1.5—2.5 mm. long, linear, emarginate, concave above, pubescent on the margin. Ovary with 3 carpels bearing rotund hispid or glabrous processes. Style glabrous.

UNIONDALE DIV.: foothills of Kouga Mts. at Braam River, *Esterhuysen* 16323.—WILLOWMORE DIV.: Swanepoels Poort Berg, *Drège* 7123 (type of *A. mucronata* in Stockholm, cotype in Kew Herb.), *Marloth* 4128 (type of var. *Rudolphii* in National Herb., cotypes in Bolus Herb. and S. Afr. Mus. Herb.); mountains west of Miller Station, *Andreae* 1014.

Flowering Sept., Oct. This species is retained with some doubt. The affinity is very close with *A. Martiana*. The characters of the sepals, used for distinction in the present key, may be such as have developed in arid conditions of soil and climate.

34. **A. pungens** comb. nov. **Barosma pungens** E. Mey. ex Sond. in *Harv. and Sond. Fl. Cap.* i, 397 (1860)!

A much branched shrub 30—60 cm. high, with branches retaining the bracts and bracteoles of previous flowering periods. Branchlets pubescent. Leaves mostly 1—1·5 cm. long, sometimes up to 3 cm. long, opposite or alternate, crowded, erect-spreading or spreading, often slightly recurved, lanceolate or linear-lanceolate, acuminate, sharply mucronate, rounded at the base, distinctly concave above, slightly thickened at the margin, rounded and with scattered and marginal glands beneath, ciliate at the base. Flowers axillary, 1—3 together. Peduncles 4—5 mm. long, glabrous, subtended by 2 oblong ciliolate bracteoles. Sepals 1·75 mm. long, linear-lanceolate, obtuse, convex beneath, ciliate. Petals 3·75 mm. long, elliptic or ovate-elliptic, rounded at the apex, widely cuneate at the base, glabrous. Stamens glabrous. Staminodes 1·25 mm. long, lanceolate, gland-tipped, concave above, ciliate. Disk crenulate. Ovary glabrous, with 2 carpels bearing oblong obtuse warted processes. Style glabrous.

PRINCE ALBERT DIV.: Klaarstrom, *Drège* (cotypes in Kew Herb., S Afr. Mus. Herb. and Stockholm).—UNIONDALE DIV.: Hoopsberg, north slopes near the summit, *Esterhuysen* 6552; Kamanassie Mts., Mannetjieberg, *Esterhuysen* 4712, 16468.

Flowering Nov. A remarkable species, quite unlike any other in appearance, and resembling some species of *Cliffortia*.

35. **A. Martiana** Sond. in *Harv. and Sond. Fl. Cap.* i, 416 (1860)!; *Dümmer in Fed. Rep.* xi, 403 (1912). **Hartogia Martiana** O. Kze. *Rev. Gen.* i, 101 (1891). **A. Bowiei** *Dümmer op. cit.* 401!

Branchlets puberulous. Leaves 3—7 mm. long, alternate, erect-spreading, elliptic, ovate or rotund, mucronate, rounded or sub-cuneate at the base, slightly convex above or almost flat, slightly recurved and gland-crenulate at the margin, glabrous, or minutely ciliate in the lower half, usually with 2 or 3 rows of conspicuous glands beneath on either side of the slightly raised nerve. Flowers in terminal clusters. Peduncles 4—7 mm. long, villous, ebracteolate. Sepals 2—3 mm. long, reflexed, oblong or oblong-lanceolate, acute or obtuse, sometimes apiculate, concave above in the upper half, pubescent above and beneath in the lower half, ciliate, sometimes with a wide membranous margin. Petals 3·5—4·5 mm. long, elliptic or elliptic-oblong, very obtuse, widely cuneate and

puberulous above at the base, with 2 rows of conspicuous glands beneath. Stamens glabrous. Staminodes 1.5 mm. long, oblong- or linear-lanceolate, obtuse or truncate, with a large gland behind the apex, puberulous above or pubescent at the margin. Ovary glabrous, with 3 or sometimes 4 carpels bearing rotund processes. Style glabrous.

South Africa: without precise locality or name of collector (type of *A. Bowiei* in Kew Herb.); without precise locality, *Niven* (type of *A. Martiana* in Stockholm).—HUMANSDORP DIV.: near Wagenbooms Station, north side of Kromme River, *Burchell* 4851; Zuur Anys, *Fourcade* 3025; between Assegai Bush and Essenbosch, Kromme River, *Fourcade* 2212; Kouga River, drift on road from Zuur Anys, *Fourcade* 3025a; Groot Hoek, *Fourcade* 742.

Flowering July—Sept. The affinity is clearly with *A. puberula*, the two species possessing many similar characters.

36. ***A. spinosa*** Sond. in *Harv. and Sond. Fl. Cap.* i, 417 (1860)!; *Dümmer in Fed. Rep.* xi, 403 (1912). ***Hartogia spinosa*** O. Kze. *Rev. Gen.* i, 102 (1891).

Branchlets pubescent. Leaves mostly 4—6 mm. long, alternate, spreading or somewhat recurved, widely ovate, rounded at the base, terminating in a long, sharp and usually straight mucro, slightly concave and smooth above, distinctly thickened, cartilaginous and pale at the margin, ecarinate, with scattered glands beneath, glabrous, or minutely puberulous on the margin. Flowers in terminal clusters. Peduncles 2—2.5 mm. long, pubescent, ebracteolate. Sepals 2—3 mm. long, ovate, tapering to a pungent apex, ciliolate, obtusely keeled, often pubescent beneath at the base, with a few glands near the keel. Petals 4—5 mm. long, elliptic or obovate, very obtuse and cucullate at the apex, cuneate at the base, puberulous above in the lower half. Stamens glabrous. Staminodes 2—2.5 mm. long, narrowly oblanceolate-linear, truncate, concave and pubescent above, glabrous or almost so beneath, with a conspicuous narrowly conical gland behind the apex. Ovary pubescent, with 2 carpels bearing obovate puberulous processes. Style glabrous. Fruit pubescent, with horizontal ridges, raised glands and linear-oblong emarginate processes.

South Africa: without precise locality, *Drège* 7153 (type, in Stockholm), Mund in Kew Herb.—UNIONDALE DIV.: Uniondale, *Paterson* 3065; hills north-east of Avontuur, *Fourcade* 4608; Hoopsberg, lower south slopes, *Esterhuysen* 6537.

Flowering Sept.—Nov. A close affinity with *A. recurvifolia* suggests that further collecting may provide material with characters connecting the two species.

37. **A. pilifera** Schldl. in *Linnaea* vi, 206 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 414 (1860) excl. syn. Spreng.; *Dümmer in Fed. Rep.* xi, 332 (1912). **Diosma pilifera** Steud. in *Flora* 1830, p. 549. **Hartogia pilifera** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets pubescent or puberulous. Leaves usually 4—6 mm. long, alternate, erect-spreading, ovate, elliptic, elliptic-oblong, ovate-oblong or sometimes oblong-lanceolate, subacute, with a slender incurved mucro, rounded or subcordate at the base, slightly convex or flat above, gland-crenate and slightly revolute at the margin, glabrous or at first minutely puberulous, sometimes with 1—4 scattered glands and a slightly raised nerve beneath. Flowers in terminal clusters. Peduncles 3 mm. long, puberulous, ebracteolate. Sepals 1.5—2 mm. long, oblong, or oblong-spathulate, obtuse, acute or mucronate, or considerably widened and subfoliaceous or subtrilobed in the upper half, sometimes ciliolate on the lower half, with conspicuous glands beneath, often puberulous on the lower half. Petals 2.5 mm. long, elliptic, obtuse, cuneate at the base, puberulous beneath on the lower half. Stamens glabrous. Staminodes 0.75—1 mm. long, linear, semi-cylindric, tipped with a conical gland, pubescent above on the upper half. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

HUMANSDORP DIV.: Loerie Plantation, *Dix* 70.—PORT ELIZABETH DIV.: Port Elizabeth, *Brunt* 248.—UITENHAGE DIV.: Winterhoek Mt., *Ecklon and Zeyher* 884 (cotypes in Kew Herb., S. Afr. Mus. Herb. and Stockholm), *Fries, Norlindh and Weimarck* 1076; Elands River Mts., *Forest Dept. Herb.* 2232.

Flowering Sept., Oct. The occasional leaf-like sepals are a remarkable feature of this species.

38. **A. Mundtii** Cham. and Schldl. in *Linnaea* v, 56 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 412 (1860). **A. Niveni** *Sond. op. cit.* 412! **Hartogia Mundtii**, **H. Niveni** O. Kze. *Rev. Gen.* i, 101 (1891). **Agathosma Taskerae** *Dümmer in Fed. Rep.* xi, 402 (1912)! **A. Pillansiana** *Dümmer in Ann. Bolus Herb.* iii, 53 (1920)! **A. Sonderiana** *Dümmer op. cit.* 50! **A. Tugwelliae** *Dümmer op. cit.* 56!

Branchlets puberulous or pubescent with retrorse hairs. Leaves 0.4—1 cm. long, alternate, erect-spreading or spreading, elliptic, lanceolate-, oblanceolate- or elliptic-oblong, acute, subacute or obtuse, rounded or cuneate at the base, convex and glabrous or puberulous above, revolute and with conspicuous glands at the margin, glabrous or puberulous beneath, with a prominent nerve and few or no glands. Flowers in terminal or axillary clusters. Peduncles 2.5—5 mm. long, puberulous or glabrous, ebracteolate. Sepals 0.5—1.5 mm. long, ovate, deltoid- or

oblong-ovate, or ovate-lanceolate, obtuse, glabrous or partly puberulous above, ciliate or edged with stalked glands, obtusely keeled and puberulous or glabrous beneath. Petals 3—4.5 mm. long, elliptic, oblong-elliptic, oblong-obovate or oblong-oblancoelate, obtuse, cuneate or oblong at the base, puberulous above on the lower half or glabrous. Stamens glabrous. Staminodes 0.75—1.75 mm. long, narrowly linear, subulate, oblancoelate-, elliptic- or linear-oblong, tipped with a conical or subulate gland, furrowed above, $\pm$ ciliate, sometimes pilose above and beneath. Ovary glabrous, or setose on the upper half, with 2 carpels bearing rotund processes. Style glabrous.

South Africa: without precise locality, *Mund and Maire* (cotype of *A. Mundtii* in Stockholm).—GEORGE DIV.: hills south of Schoenberg, *Fourcade* 3411; Devil's Kop, *Niven* 13 (type of *A. Niveni* in Stockholm, cotypes in Brit. Mus. Herb. and Kew Herb.); Montagu Pass, *Fourcade* 1610, 4745, *Schlechter* 5812 (type of *A. Sonderiana* in Bolus Herb., cotypes in Albany Mus. and Kew Herb.).—HUMANSDORP DIV.: Tuschen Bij, *Fourcade* 479; hills 5 miles north of Humansdorp, *Fourcade* 2225; Kromme River Dam, *Fourcade* 6042; Kouga River Drift, on road from Zuur Anys, *Fourcade* 3087.—LADISMITH DIV.: Roodeberg, *Esterhuysen* 17158, *Lewis* in S. Afr. Mus. Herb. 57802, *Compton* 21473; near Ladismith, *Esterhuysen* 13988, *Levyms* 2076, 4202, 6102, 9047; Seven Weeks Poort, *Levyms* 2474.—LAINGSBURG DIV.: Wittepoort, *Walgate* 348.—OUDTSHOORN DIV.: without precise locality or collector, Bolus Herb. 13759 (type of *A. Pillansiana*, cotype in S. Afr. Mus. Herb.); Zwartberg Pass, *Krige* in Bolus Herb. 13432 (type of *A. Tugwelliae*), *Levyms* 6657, 9128, *Stokoe* 9290.—UNIONDALE DIV.: Long Kloof, mountain sides near west bank of Wagenboom River, *Burchell* 4928 (type of *A. Taskerae* in Kew Herb.); Outeniqua Mts., north slopes near Joubertina, *Esterhuysen* 6907, 10644, *C. J. Esterhuysen* Bolus Herb. 23973; Georgida, *Esterhuysen* 6390; Kouga Mts., peak east of Smutsberg, *Esterhuysen* 7008, 10714; Kouga Peak, *Esterhuysen* 16287; Kouga Hills, *Esterhuysen* 6702.

Flowering June—Nov. The dorsiventral leaves, the occurrence of axillary flower-clusters, the almost clawless petals and the comparatively under-developed staminodes indicate close affinity with the more primitive species.

39. *A. elegans* Cham. in *Linnaea* v, 54 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 422 (1860). *Gymnonychium pubescens* Bartl. in *Linnaea* xvii, 354, t. xi (1843)! *A. pubescens* *Sond. op. cit.* 413; *Dümmer in Fed. Rep.* xi, 331 (1912). *Hartogia elegans*, *H. pubescens* *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets pubescent. Leaves usually 0.5—1 cm. long, alternate,

erect-spreading, oblong, elliptic-oblong, oblong- or ovate-lanceolate, obtuse or subacute, rounded or subcordate at the base, $\pm$ concave and glabrous or hispid above, slightly revolute, somewhat crenate, with marginal glands, rarely with stalked glands on the margin, glabrous, or $\pm$ hispid beneath, with a slightly raised nerve. Flowers in terminal clusters. Peduncles 2—3 mm. long, puberulous, subtended by bracteoles. Sepals 1.25—1.5 mm. long, ovate-lanceolate, obtuse or subacute, usually puberulous above on the upper half, convex and puberulous beneath, with a slightly raised nerve. Petals 3—3.5 mm. long, elliptic-oblong or obovate, obtuse, tapering to a narrowly cuneate base, ciliate or puberulous above on the lower half. Stamens glabrous. Staminodes 1.25—2 mm. long, slightly recurved, linear, tapering towards both ends, gland-tipped, involute and ciliate at the margin. Ovary puberulous on the apex, with 2 carpels, or sometimes 1 carpel, bearing rotund setose processes. Style glabrous.

South Africa: without precise locality, *Mund and Maire* (cotypes of *A. elegans* in Kew Herb. and Stockholm), Niven (cotype of *A. pubescens* in Stockholm).—GEORGE DIV.: Montagu Pass, *Compton* 7174, 7418, 7419, 7586, 7589, *Fourcade* 3250, 6404, *Rogers* 4310, *Schlechter* 5784, *Thode* A2405; Bergplaats, "Korbonaatjes Kraal," *Laughton* 144.—KNYSNA DIV.: Jonkersberg, *Keet* 1039, *J. Phillips* 1087.—RIVERSDALE DIV.: Garcia's Pass, *Esterhuysen* 17223.—UNIONDALE DIV.: Helpmekaar Peak, *Esterhuysen* 4566.

Flowering Jan.—Dec.

40. ***A. blaerioides*** *Cham. in Linnaea*, v, 55 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 413 (1860); *Dümmer in Fed. Rep.* xi, 331 (1912). ***Hartogia blaerioides*** *O. Kze. Rev. Gen.*, i, 101 (1891).

Branchlets pubescent or puberulous. Leaves 3—6 mm. long, alternate, erect-spreading or spreading, incurved, lanceolate, ovate-lanceolate, elliptic or ovate, subacute or obtuse, rounded or subcordate at the base, concave and puberulous or hispid above, $\pm$ revolute and usually with stalked glands at the margin, puberulous or glabrous and eglandular beneath, with large glands on the recurved margin. Flowers in terminal clusters. Peduncles 2—2.5 mm. long, puberulous or shortly pubescent, subtended by bracteoles. Sepals 1.5—1.75 mm. long, oblong, obovate or oblong-obovate, obtuse, slightly keeled and puberulous or shortly pubescent beneath, sometimes with stalked marginal glands. Petals 2.5—3.5 mm. long, obovate or obovate-elliptic, very obtuse, long-cuneate towards the base, often sparsely pubescent above near the base, with several glands beneath. Stamens glabrous. Staminodes 1.5—2 mm. long, subulate or lanceolate-linear, slightly concave and pubescent above,

tipped with an elliptic gland. Ovary puberulous on the apex, with 2 carpels bearing rotund processes. Fruit pubescent except on the processes.

GEORGE DIV.: Olifants River, *Dr. Gill*.—OUDTSHOORN DIV.: Robinson's Pass, *Taylor* in Bolus Herb. 10586, *Salter* 6350, *Hops* 99, *Compton* 19603.—RIVERSDALE DIV.: Kampsche Berg, *Muir* 3328.—UNIONDALE DIV.: Long Kloof Mts., Mordkuils Hoogte, *Mund and Maire* (cotype in Stockholm); Prince Alfred's Pass, *Fourcade* 1287, 1287a, 3792, *Salter* 6730, *Schönland* 3409; Helpmekaar Peak, *Compton* 4594, 10457, *Esterhuysen* 4566; west of Lauterwater, Many Waters Kloof, *Compton* 5159, 7179; Avontuur, *Compton* 10790.

Flowering April—Jan.

41. **A. apiculata** G. F. W. Mey. in *Bartl. and Wendl. Diosm.* 176 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 414 (1860); *Dümmer in Fed. Rep.* xi, 332 (1912) incl. var. *algoensis*. **Diosma apiculata** Spreng. *Syst. Veg.* i, 787 (1825). **Barosma apiculata** Eckl. and Zeyher, *Enum.* 104 (1835)! **Agathosma aristata** Presl, *Bot. Bemerk.* 32 (1844) absque descr. **Hartogia apiculata** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets pubescent or glabrous. Leaves 2.5—8 mm. long, alternate, spreading or reflexed, oblong- or ovate-lanceolate, ovate or sometimes cordate, acute or obtuse, with a slightly recurved awn-like mucro, rounded or $\pm$ cordate at the base, convex above, sometimes with a raised nerve, glabrous, often furrowed beneath, with the glands usually confined to the margin. Flowers in terminal clusters. Peduncles 1—4 mm. long, puberulous or pubescent, ebracteolate. Sepals 1.5—3 mm. long, lanceolate or ovate-lanceolate, mucronulate or mucronate, slightly keeled on the upper half, glabrous. Petals 3.5—4 mm. long; blade obovate or ovate, obtuse, ciliolate at the base; claw almost as long, linear-oblong, puberulous above, ciliolate. Stamens glabrous. Staminodes 2.5 mm. long, linear, acuminate, gland-tipped, ciliolate. Ovary with many long-stalked glands on the upper half, with 3 carpels bearing rotund processes. Style glabrous. Fruit reticulately ridged, with linear-oblong processes.

BATHURST DIV.: Kasouga, *Britten* 2368; Port Alfred, *Rogers* 27480, *Schönland* 785; Kowie West, *Britten* 2665.—GEORGE DIV.: hills east of Great Brak River, *Fourcade* 6006; the Wilderness, *Compton* 15829, *Levy's* 777, 5006; Great Brak River, *Schlechter* 5745.—HUMANSDORP DIV.: Witte Els Bosch, seashore, *Fourcade* 1379; Slang River, *Phillips* 3344; near the coast, *Duthie* 1098, *Rogers* 3083; near Humansdorp, *Kennedy* in S. Afr. Mus. 1447; dunes between Kromme and Slang rivers, *J. Sim* 6.—KNYSNA DIV.: Goukamma, *Compton* 7559; between Goukamma River and Melkvei, *Burchell* 5609; Plettenberg Bay, *Burchell* 5309, *Michell* in Bolus Herb. 16085; Buffalo Bay, *Keet* 880, *Levy's*

7884; Keurboom River, near the mouth, *Fourcade* 227.—MOSSEL BAY DIV.: near mouth of the Gouritz River and at Fish Bay, *Drège* 7118; Mossel Bay, *Zeyher* in S. Afr. Mus. Herb. 14463, *Rogers* 4173.—PORT ELIZABETH DIV.: Humewood, *Compton* 13164, *Paterson* 784, 1091, *Potts* 300; dunes near the shore, *Bolus* 2223, *Burchell* 4289, 4305; Redhouse, *Long* 1072, *Paterson* 1133; near Cape Recife, *Ecklon* 207, *Ecklon and Zeyher* 815; Schoenmakers Kop Road, *Holland* 3622.—RIVERSDALE DIV.: Still Bay and Melkhoutfontein, limestone hills and dunes, *Muir* 3116.—UITENHAGE DIV.: Van Staadens, *Long* 660, *Letty* 149, *Paterson* 1091, 2671.

Flowering April—Jan.

42. ***A. recurvifolia*** *Sond. in Harv. and Sond. Fl. Cap.* i, 415 (1860)!; *Dümmer in Fed. Rep.* xi, 402 (1912). ***A. acutifolia*** *Sond. op. cit.* 416! ***Hartogia acutifolia***, ***H. recurvifolia*** *O. Kze. Rev. Gen.* i, 101 (1891). ***Agathosma pubicalyx*** *Dümmer op. cit.* 401!

Branchlets puberulous. Leaves 2—7 mm. long, alternate, erect-spreading, elliptic, ovate or rotund, mucronate or mucronulate, rounded at the base, concave above, with a distinctly thickened pale and eglandular margin, with an inconspicuous nerve and many scattered glands beneath, entirely glabrous or puberulous. Flowers in terminal clusters. Peduncles 2—5 mm. long, glabrous or puberulous, ebracteolate. Sepals 1—1.5 mm. long, ovate or oblong, obtuse or subacute, convex and glabrous or puberulous beneath, with a callus behind the apex. Petals 3.5—4.5 mm. long, obovate, oblong-obovate or oblong-elliptic, obtuse, cuneate at the base, puberulous above on the lower half, often with a few glands beneath on the upper half. Stamens glabrous. Staminodes 1.5—2.5 mm. long, linear or oblong, concave and puberulous above, tipped with a conical gland. Ovary glabrous or puberulous, with 2 carpels bearing rotund processes. Style glabrous.

South Africa: without precise locality, *Roxburgh* (type of *A. pubicalyx* in Brit. Mus., cotype in Kew Herb.).—MOSSEL BAY DIV.: Robinson Pass, *Compton* 19601.—PRINCE ALBERT DIV.: Sand River Mts., *Marloth* 4328; Klaarstrom, *Drège* 7124 (type of *A. recurvifolia* in Stockholm, cotype in Kew Herb.).—UNIONDALE DIV.: Slypsteenbergh, *Esterhuysen* 6335; Joubertina, *Esterhuysen* 10624, *C. J. Esterhuysen* in *Bolus* Herb. 23966; Kouga, near Misgund, *Compton* 7420, *Esterhuysen* 6709, 6954; foothills near Smutsberg, *Esterhuysen* 10713; Ongelegen, *Fourcade* 4872.—WILLOWMORE DIV.: Aasvogelberg, *Drège* 7125 (type of *A. acutifolia* in Stockholm, cotype in Kew Herb.), *Marloth* 14158, *Andreae* 964.

Flowering May—Nov.

43. ***A. fraudulent*** *Sond. in Harv. and Sond. Fl. Cap.* i, 415 (1860)! ***Hartogia fraudulent*** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets velvety-puberulous. Leaves 0·7—1·2 cm. long, alternate, ascending, cuneate-obovate, obtuse or subacute, cuneate at the base, $\pm$ convex above, slightly thickened and crenulate at the margin, with a raised nerve and large scattered glands beneath, minutely velvety-puberulous above and beneath. Flowers in terminal clusters, the lower subtended by subfoliaceous bracts. Peduncles 0·6—1 cm. long, puberulous, subtended by bracteoles. Sepals 4 mm. long, lanceolate-linear, obtuse, gland-tipped, recurved in the upper half, puberulous above and beneath. Petals 5 mm. long, elliptic-oblong, obtuse, cuneate at the base, puberulous above in the lower half, with large glands scattered beneath. Stamens glabrous. Staminodes 1·75 mm. long, linear-oblong, truncate, dorsally compressed, puberulous beneath, with a large apical gland. Ovary puberulous, with 3 carpels bearing oblong processes terminating in a large gland.

Locality and collector unknown. The type is in Sonder's Herbarium, now in the Riks. Mus., Stockholm. It is accompanied by a slip of paper on which is written "No. 26. *Adenandra*" in a handwriting not recognised.

44. *A. planifolia* Sond. in *Harv. and Sond. Fl. Cap.* i, 413 (1860)! *Hartogia planifolia* O. Kze. *Rev. Gen.* i, 101 (1891). *Agathosma sessilipetala* Dümmer in *Fed. Rep.* xi, 337 (1912)! incl. var. *A. Keetii* Dümmer in *Ann. Bolus Herb.* iii, 52 (1920)!

Branchlets pubescent or puberulous. Leaves 3—7 mm. long, alternate, erect-spreading, ovate- or obovate-oblong or ovate, obtuse, rounded or subcordate at the base, slightly convex, flat or slightly concave and glabrous or hispidulous above, with a thickened slightly revolute and eglandular margin, sometimes sparsely ciliate, glabrous or puberulous beneath, with a slightly raised nerve and small scattered glands. Flowers in terminal clusters. Peduncles 3—4 mm. long, puberulous, ebracteolate. Sepals 1·5 mm. long, oblong or oblong-lanceolate, obtuse, ciliate, often with a few setaceous hairs at the apex, slightly keeled beneath. Petals 3·5—4 mm. long, obovate or elliptic-ovate, obtuse, cuneate at the base, sparsely puberulous above near the base, with a few glands beneath. Stamens glabrous. Staminodes 1 mm. long, linear or lanceolate-linear, with a conical gland behind the apex, slightly involute at the margin, minutely ciliate on the lower half. Ovary minutely setose on the apex, with 2 carpels bearing rounded processes. Style glabrous.

South Africa: without precise locality, *Niven* (type of *A. planifolia* in Stockholm), *Roxburgh* 3 (type of *A. sessilipetala* in Brit. Mus., cotype in Kew Herb.).—KNYSNA DIV.: *Plaat Bosch*, *Keet* in Forest Dept. Herb. 2386 (type of *A. Keetii* in Bolus Herb.); *Van der Walt's Hoek*, *Keet* 1070; *Hoogeberg*, *Keet* 993.

Flowering Jan.

45. **A. ovalifolia** nom. nov. **A. acuminata** E. Mey. in *Drège Zwei Pfl. Doc.* 65 (1844) nomen, non Willd. **A. Meyeriana** Presl, *Bot. Bemerk.* 32 (1844)! nomen.; *Walpers, Ann.* i, 155 (1848) nomen. **A. punctata** Sond. in *Harv. and Sond. Fl. Cap.* i, 417 (1860)! non G. Don. **Hartogia punctata** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets puberulous. Leaves 4—5 mm. long, alternate, erect-spreading, slightly recurved at the apex, elliptic, widely ovate or subrotund, obtuse or with a short blunt mucro, slightly concave above, often somewhat thickened and pale at the margin, widely convex and hispidulous beneath, with large scattered glands extending to the margin. Flowers in terminal clusters. Peduncles 4 mm. long, puberulous, ebracteolate. Sepals 1.5 mm. long, oblong, obtuse, ciliate, convex behind the apex, with prominent glands beneath, puberulous on the lower half. Petals 4.5 mm. long, elliptic-oblong, obtuse, cuneate at the base, ciliate, puberulous above near the base. Stamens glabrous. Staminodes 2.5 mm. long, linear, truncate, tipped with a rotund gland, concave above, ciliate. Ovary puberulous about the apex, with 2 carpels bearing rounded hispid processes. Style glabrous.

PRINCE ALBERT DIV.: north of Klaarstrom, "Middelwater," rock crevices, *Levy's* 6617.—WILLOWMORE DIV.: Witte Poort Mts., *Drège* 7122 (type of *A. punctata* in Stockholm, cotypes in Bolus Herb. and Kew Herb.).

Flowering Aug., Sept.

46. **A. clavisepala** R. A. Dyer in *Kew Bull.* 1934, p. 270!

Branchlets puberulous or with reflexed pubescence. Leaves 3.5—5 mm. long, alternate, erect-spreading, spreading or slightly reflexed, oblong, ovate-oblong, elliptic, ovate-elliptic or sometimes ovate, obtuse or subacute, rounded at the base, glabrous, convex or almost flat above, slightly recurved and with conspicuous glands at the margin, usually with a raised nerve beneath. Flowers in terminal clusters. Peduncles 3 mm. long, glabrous or with reflexed pubescence, subtended by ovate-lanceolate bracteoles. Calyx glabrous or puberulous; sepals 1.5 mm. long, ovate-oblong, very obtuse and swollen behind the apex, or deltoid-ovate in the lower half and clavate in the upper half, slightly keeled beneath, ciliate. Petals 3—4 mm. long, elliptic- or ovate-oblong, very obtuse, cuneate at the base, puberulous above on the lower half, ciliate from the middle downwards. Stamens glabrous. Staminodes 1.5 mm. long, oblong-lanceolate, concave above, puberulous beneath, subquadrate and glabrous at the base, tipped with an acute gland. Ovary glabrous, with 2 carpels bearing rotund processes. Style glabrous.

ALBANY DIV.: near Sidbury, "Rockcliffe," *Daly* 822; near Salem,

Wilmot in National Herb. 15304 (type, cotypes in Lund and Stockholm).—ALEXANDRIA DIV.: Zuurborg, above Slangboom, *Rennie* 458.—BATHURST DIV.: Hopewell, *Acock* 11138; Southwell, *Britten* 2244.

Flowering June—Sept.

47. **A. odoratissima** comb. nov. *Diosma odoratissima* *Montin* in *Phys. Sallsk. Handl.* i, 104 (1776). **D. latifolia** *Linn. f. Suppl.* 154 (1781); *Thunb. Prodr.* 84 (1794); *Gmelin, Syst. Veg.* ii, 409 (1796); *Thunb. Diss. Diosm.* 15 (1797); *Murr. Syst. Veg.* 250 (1797); *Willd. Sp. Pl.* i, 1138 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Ait. Hort. Kew.* ed. 2, ii, 32 (1811) excl. syn. *Andr.*; *Thunb. Fl. Cap. ed. Schultes* 229 (1823); *DC. Prodr.* i, 714 (1824) excl. syn. *Andr.*; **D. betulina** *Lam. Encycl. Meth.* ii, 288 (1786) non *Thunb.* **Baryosma latifolia** *Roem. and Schultes, Syst. Veg.* v, 449 (1819) excl. syn. *Andr.* **Barosma pulchra** *Cham. and Schldl. in Linnaea* v, 53 (1830). **B. alpina** *Eckl. and Zeyher, Enum.* 102 (1835)! **B. latifolia** *Sond. in Harv. and Sond. Fl. Cap.* i, 394 (1860). **B. pulchella** var. **major** *Sond. l. c.*!

A stoutly wiry much branched shrub about 1 m. high, with pubescent branchlets. Leaves 0.5—1.5 cm. long, alternate or ternate, usually crowded, erect-spreading, ovate or lanceolate, obtuse, rounded at the base, flat, slightly concave or convex above, gland-crenate, often slightly revolute at the margin, sparsely pubescent in some parts or glabrous, sometimes with conspicuous veins beneath, with glands confined to the margin. Flowers 1—2 together, axillary. Peduncles usually 0.5—1 cm. long, glabrous or very sparsely pubescent, subtended by spatulate-oblong bracteoles. Sepals 1.25—1.5 mm. long, ovate or ovate-oblong, very obtuse, concave above, ciliolate, with several large glands beneath. Petals 4—5 mm. long, ovate, ovate- or elliptic-oblong, very obtuse, shortly cuneate at the base, concave in the upper half, ciliolate near the base, with several conspicuous glands beneath. Stamens glabrous, or very sparsely pubescent on the filaments. Staminodes 2.5—3.25 mm. long, linear, lanceolate-linear or linear-oblong, tapering to a gland-tipped apex, sparsely pubescent beneath, $\pm$ ciliate. Disk fleshy, crenulate. Ovary shortly stipitate, glabrous or sparsely pubescent, usually with 4, sometimes with 3 or 5, warted carpels bearing widely oblong or ovate processes. Style glabrous.

CALEDON DIV.: Landdrost Kop, *Stokoe* 7663; Somerset Sneeuwkop, *Esterhuysen* 1850, *Marloth* 1841, *Stokoe* in S. Afr. Mus. Herb. 58814.—CERES DIV.: near Ceres, *Bolus* 24459; Hansies Berg, *Compton* 16707, *Lewis* in S. Afr. Mus. Herb. 59368; Conical Peak, *Stokoe* 7664, in S. Afr. Mus. Herb. 59374; Castle Rocks, *Esterhuysen* 14163; Laaken Vlei, *Phillips* 1957; Mostertshoek Twins, *Esterhuysen* 9864, *Wasserfall* 802; Olifants

River Mts., south of Groen, *Esterhuysen* 13456.—CLANWILLIAM DIV.: Cederberg, *Primos* in Marloth Herb. 11675.—PAARL DIV.: Du Toits Kloof, *Drège* in S. Afr. Mus. Herb. 14384; April Peak, *Compton* 10166, *Esterhuysen* 4100; Wemmershoek Peak, *Andrae* 562, *Esterhuysen* 11246; mountains near French Hoek, *Phillips* 1081, *Schlechter* 9242; French Hoek Peak, *Stokoe* in S. Afr. Mus. Herb. 59373; Bailey's Peak, *Esterhuysen* 1614; Lower Wellington Sneeuwkop, *Esterhuysen* 12433; Winterberg, *Esterhuysen* 9658.—PIKETBERG DIV.: mountains near Saron, *Schlechter* 10685; Twenty Four Rivers Mts., *Esterhuysen* 16175.—RIVERSDALE DIV.: Kampsche Berg, *Burchell* 7084.—ROBERTSON DIV.: Omklaar Mt., *Stokoe* 7083.—SWELLENDAAM DIV.: mountain peak near Swellendam, *Burchell* 7406; Lemoenshoek, *Esterhuysen* 10438, *Thorne* in S. Afr. Mus. Herb. 44532.—TULBAGH DIV.: Witsenberg, *Andrae* 142, *Burchell* 8680 *Zeyher* 284; mountains near Tulbagh, *Ecklon and Zeyher* 803; Nieuwekloof, *Drège* in National Herb. 9200, *Bolus* in Natal Herb. 7382; Winterhoek Mt., *Bolus* 5139, *Ecklon and Zeyher* 806 (cotype of *Barosma alpina* in S. Afr. Mus. Herb. and Stockholm); near Artois, *Bolus* 7579; Great Winterhoek, *Phillips* 1716; Little Winterhoek, *Marloth* 487, 488.—WORCESTER DIV.: Matroosberg, *A. Bolus* in Guthrie Herb. 4396, *Davidson* in S. Afr. Mus. Herb. 32, *Esterhuysen* 14203, *Marloth* 2224, 2359; Bain's Kloof, *Compton* 17495; Du Toit's Peak, *Marloth* 2496; Stettynsberg, *Esterhuysen* 11097; Milner Peak, *Esterhuysen* 8483, 14250, 14902; Slanghoek Mts., *Esterhuysen* 1705, 8631, 9479; *Wasserfall* 640; Waaihoek Mts., *Esterhuysen* 8323; Keeromsberg, *Esterhuysen* 9247; Buffelshoek Peak, *Esterhuysen* 8426, 15138; Brandwacht Peak, *Esterhuysen* 11014; Hex River Mts., Milner Ridge, *Esterhuysen* 9365; Shale Peaks, *Esterhuysen* 8735.

Flowering Aug.—March.

48. **A. Sladeniana** *Glover in Ann. S. Afr. Mus.* ix, 204, t. 8 b (1915)!

A densely branched low shrub with hispid branchlets. Leaves 4—6 mm. long, alternate, ascending, linear-lanceolate, obtuse, slightly incurved at the apex, rounded at the base, concave above, $\pm$ gibbous behind the apex, rounded and with tubercle-based hairs beneath. Flowers in terminal clusters, surrounded by widened scale-like leaves. Peduncles 0.5—1 mm. long, glabrous, ebracteolate. Sepals 2 mm. long, linear or linear-spathulate, obtuse, ciliate. Petals 5 mm. long, linear-spathulate, ciliate on the lower half. Stamens glabrous. Staminalodes 3 mm. long, linear, tapering towards both ends, pilose above at the middle. Ovary with 3 carpels bearing widely rotund hispid processes. Style glabrous.

CLANWILLIAM DIV: Cold Bokkeveld Mts. opposite Warm Baths, *Stephens and Glover* in *Sladen Mem. Exped.* 7114 (type, in *Bolus Herb.*,

cotype in Kew Herb.); Elands Kloof, west end, *Leighton* 1250; "Modderfontein," *Gillett* 3693; Citrusdal, *Barker* 3769; between Grey's Pass and Clanwilliam, *Leipoldt* 3720; between Grey's Pass and Kranz Kloof, Scherfseheuveldsberg, *Leipoldt* in Bolus Herb. 23974.

Flowering Sept., Oct.

49. *A. mirabilis* sp. nov.; ramulis pubescentibus; foliis alternatis oblongo-lanceolatis acutis vel subacutis, supra concavis glandulis, subtus convexis conspicue carinatis primum pilosis; floribus terminalibus sessilibus; sepalis late ovatis obtusissimis concavis ciliolatis; petalis oblanceolatis ciliolatis, basi sparse pubescentibus; staminibus totis pubescentibus; staminodis oblanceolato-oblongis, medium pubescentibus, apice glandula notatis; disco tubiforme lobato membranaceo; ovario 3-loculari cornubus late spatulatis dorse compressis margine pilosis; stylo glabro.

A much branched shrub usually 30—40 cm. high, with erect-spreading branches and pubescent branchlets. Leaves mostly 0.8—1 cm. long, alternate, erect-spreading, oblong-lanceolate, acute or subacute, rounded at the base, concave and gland-warted above, rounded and with a prominent often, at first, pilose nerve beneath, with marginal and scattered glands. Flowers few, solitary at the ends of short leafy branchlets, sessile subtended by an ovate bract and 2 rotund deeply concave bracteoles. Sepals 2 mm. long, widely ovate, rounded at the apex, very concave, ciliate. Petals 8—9 mm. long, oblanceolate, obtuse, slightly concave above, sparsely pubescent at the base, ciliate, with many glands beneath near the nerve. Stamens with pubescent filaments. Staminodes 3 mm. long, oblanceolate-oblong, obtuse, slightly concave above, pubescent and ciliate at the middle, with a round gland behind the apex. Disk embracing the lower part of the ovary, produced into a membranous tube readily splitting into toothed lobes. Ovary glabrous on the lower part, with 3 carpels bearing widely spatulate dorsally compressed erect-spreading processes with hairs on the margin and a few above. Style glabrous. Fruit sparsely pubescent.

CERES DIV.: Michell's Pass, Slab Peak, rock-crevices, *Esterhuysen* 6159; Michell Peak, west side, rock-crevices, *Esterhuysen* 14789.—WORCESTER DIV.: Hex River Mts., shale band above Buffels Dome, *Esterhuysen* 8723 (type, in Bolus Herb.); Milner Ridge Peak, lower south-east slopes, rock-crevices, *Esterhuysen* 7814, 8461; Horseshoe Peak, *Esterhuysen* 8753; Fonteintjiesberg, *Esterhuysen* 8757; Waaihoek, rock-crevices, *Esterhuysen* 8882, 8972; Shale Peaks, rock-crevices, *Esterhuysen* 8449.

Flowering Sept.—March. A very distinct species without any apparent affinity. Remarkable characters are (1) the flowers being sessile

and (2) the disk being produced into a tube splitting into toothed lobes. The type collection has some flowers with 8 petals and pubescent anthers.

50. **A. pulchella** Link, *Enum. Hort. Berol.* i, 238 (1821). **Diosma pulchella** Linn. *Sp. Pl.* ed. 2, p. 288 (1762); *Lam. Encycl. Meth.* ii, 288 (1786); *Ait. Hort. Kew.* i, 276 (1789); *Thunb. Prodr.* 43 (1794); *Gmelin, Syst. Nat.* ed. 13, ii, 409 (1796); *Murray, Syst. Veg.* 25 (1797); *Thunb. Diss. Diosm.* 15 (1797); *Willd. Sp. Pl.* i, 1140 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Ait. Hort. Kew.*, ed. 2, ii, 33 (1811); *Sims in Curtis Bot. Mag.* t. 135 (1811); *Thunb. Fl. Cap. ed. Schultes* 229 (1823) excl. descr. partim.; *DC. Prodr.* i, 714 (1824); *Spreng. Syst. Veg.* i, 785 (1825). **Hartogia pulchella** Berg. *Pl. Cap.* 69 (1767); *Linn. Syst. Nat.* ed. xii, 625 (1767). **Bucco pulchella** Roem. and Schultes, *Syst. Veg.* v, 442 (1819). **Barosma pulchella** Bartl. and Wendl. *Diosm.* 107 (1824) partim; *Sond. in Harv. and Sond. Fl. Cap.* i, 394 (1860) excl. syn. *Licht. et var.*; *Bailey, Standard Cycl. Hort.* i, 454 (1914).

Branchlets pubescent. Leaves 3—6 mm. long, opposite, ternate, quaternate, alternate or scattered, erect-spreading or spreading, ovate or lanceolate-ovate, obtuse or subacute, rounded or subcordate at the base, slightly concave above, crenate and slightly thickened at the margin, glabrous, with 8—16 glands beneath confined to the margin. Flowers 1 or 2 together in the axils of the upper leaves. Peduncles 4·5 mm. long, glabrous, subtended by 2 rotund ciliate bracteoles. Sepals 1 mm. long, widely oblong, very obtuse, ciliate, convex and with several large glands beneath. Petals 3 mm. long, ovate-oblong, rounded at the apex, widely cuneate at the base, concave above, glabrous. Stamens glabrous. Staminodes 1·5 mm. long, linear-subulate, dorsally compressed, gland-tipped, sparsely ciliate on the lower half. Disk obscurely crenulate, fleshy. Ovary subsessile, glabrous, studded with glands, with 3 or sometimes 4 carpels bearing oblong obtuse warted processes. Style glabrous, slightly recurved in the upper half.

South Africa: without precise locality, *Niven, Sparrman, Thunberg*.—CAPE DIV.: Table Mt., *Burchell* 595, *Ecklon and Zeyher* 808 partly, *Hafstrom and Acocks* 2174; Echo Valley, *Compton* 16450, *Pillans* 8889.

Flowering Nov. The following may belong here: "*Spiraea capensis spicata serpylli folio margine quesi perforato*" *Ray. App.* 249, No. 67 (1704).

51. **A. stenosepala** sp. nov.; ramulis gracilissimis pubescentibus; foliis alternatis vel oppositis oblongo-lanceolatis obtusis glabris, supra medium concavis, margine convexis; floribus terminalibus; pedunculis pubescentibus ebracteolatis; sepalis lineari-lanceolatis attenuatis obtusis ciliatis; petalis ellipticis vel obovatis, basin ciliolatis; staminibus infra

medium sparse pubescentibus; staminodis lanceolatis obtusis ciliatis, apice glandula stipitata ornatis; ovario glabro 3-loculari, cornubus oblongis obtusis; stylo glabro.

A much branched shrub about 60 cm. high, with very slender pubescent branchlets. Leaves mostly 6—8 mm. long, alternate or sometimes opposite, erect-spreading, oblong-lanceolate, obtuse, rounded or widely cuneate at the base, concave up the middle, convex towards the margin, revolute and with closely set glands at the margin, glabrous, with a prominent nerve beneath and a few glands on or near the nerve. Flowers 1 or 2 together at the ends of short leafy branchlets. Peduncles 2—2.5 mm. long, pubescent, subtended by linear-lanceolate ciliate bracteoles. Sepals 3.5 mm. long, linear-lanceolate, attenuate, obtuse, concave above, ciliate, rounded and with 2 rows of conspicuous glands beneath, sparsely pubescent at the base. Petals 4 mm. long, elliptic or obovate, very obtuse, tapering and ciliate to a wide base, concave above at the apex. Stamens with filaments very sparsely pubescent on the lower half. Stamines 1.5 mm. long, lanceolate, obtuse, slightly concave above, ciliate, tipped with a stalked gland. Disk crenulate. Ovary glabrous, with 3 carpels bearing oblong obtuse processes. Style glabrous.

PAARL DIV.: French Hoek Forest Reserve, *Leighton* in Bolus Herb. 24442 (type), *Esterhuysen* in Bolus Herb. 24443.

Flowering Sept., Oct. This is distinguished from all other species by the narrow sepals. There is no evident close affinity, though, in leaves and habit of growth, it bears a great resemblance to *A. decurrens*.

52. **A. glandulosa** *Sond. in Harv. and Sond. Fl. Cap. i, 420 (1860); Dümmer in Fed. Rep. xi, 407 (1912). Diosma glandulosa Thunb. Diss. Diosm. 5 (1797)!*; *ej. Prodr. 187 (1800); Pers. Syn. Pl. i, 247 (1805); Roem. and Schultes, Syst. Veg. v, 460 (1819); Thunb. Fl. Cap. ed. Schultes 229 (1823); Bartl. and Wendl. Diosm. 204 (1824). Hartogia glandulosa O. Kze. Rev. Gen. i, 101 (1891).*

Branchlets pubescent, with occasional glandular hairs. Leaves 4—7 mm. long, alternate, erect-spreading, ovate or oblong-elliptic, acute or almost so, rounded or slightly cordate at the base, concave above up the middle, convex towards the slightly recurved margin, with a prominent nerve and small scattered glands beneath, often with glandular hairs on the margin. Flowers in terminal clusters. Peduncles about 7 mm. long, pubescent, with many glandular hairs, ebracteolate. Sepals 2.5 mm. long, ovate-lanceolate, subacute, keeled and pubescent beneath, with occasional glandular hairs on the margin. Petals 5—6.5 mm. long, blade oblong-elliptic or ovate and subcordate at the base, obtuse; claw $\frac{2}{3}$ as long, narrowly linear, ciliate on the lower half. Stamens glabrous.

Staminodes 4.5—5 mm. long, lanceolate, long-acuminate, gland-tipped, subquadrate at the base, concave above in the lower half, ciliate. Ovary puberulous on the upper half, with 3 carpels bearing oblong pilose processes. Style pilose except towards the apex.

South Africa: without precise locality, *Thunberg* (cotype in Stockholm).—MALMESBURY DIV.: near Malmesbury, *Leighton* 56, *Stokoe* 8289, *Levy's* 9184, *Barker* 2553; between Darling and Yzerfontein, *Salter* 6232; Mamre, *Bolus* 4259; between Klipheuwel and Malmesbury, *Pillans* 6933.

Flowering Sept., Oct.

53. **A. anomala** *E. Mey. ex Sond. in Harv. and Sond. Fl. Cap.* i, 408 (1860)!; *Dümmer in Fed. Rep.* xi, 327 (1912). **Hartogia anomala** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets pubescent. Leaves 0.3—1.2 cm. long, alternate, subimbricate, oblanceolate- or elliptic-oblong, elliptic, ovate or ovate-lanceolate, obtuse or subacute, cuneate at the base, concave above, rounded-convex beneath, often slightly keeled near the apex and at first ciliate at the base, with scattered glands beneath. Flowers in terminal clusters. Peduncles about 4 mm. long, $\pm$ pubescent, with conspicuous linear or oblong ciliate bracteoles on the lower half. Sepals 2.75 mm. long, oblong-lanceolate, obtuse, concave and pubescent above, ciliate, slightly keeled near the apex, glabrous beneath. Petals 5 mm. long; blade widely oblanceolate or elliptic-oblong, obtuse, ciliate, sparsely pilose beneath or glabrous, with an apical gland; 1—1½ as long, linear, ciliate. Stamens with pilose filaments. Staminodes 5 mm. long, oblanceolate in the upper half, gland-tipped, with a slightly longer pilose-ciliate claw. Disk well developed, crenulate. Ovary with 3 carpels, glabrous, or with a few hairs on the apex and on the oblong processes. Style pilose except towards the apex.

CALEDON DIV.: near Somerset Sneeuwkop, *Stokoe* 8300, 8490, *Esterhuysen* 1425; Kogelberg, *Stokoe* 892, 1427, in *Bolus Herb.* 17611, *Esterhuysen* 9989; Victoria Peak, *Esterhuysen* 9790; Emerald Dome, *Esterhuysen* 10078.—PAARL DIV.: Winterberg, *Esterhuysen* 9633; Wemmershoek Mts., *Esterhuysen* 4036, 11247, *Bond* 735; Pic Blanc, *Esterhuysen* 8534; Haalhoek Spitzkop, *Esterhuysen* 13527; Du Toit's Kloof, *Drège* (cotype in Riks. Mus., Stockholm).—STELLENBOSCH DIV.: Buller's Kop, *Esterhuysen* 1468; Helderberg, *Esterhuysen* 7665.—WORCESTER DIV.: Brandwacht Peak, *Esterhuysen* 8587; Slanghoek Mts., Witteberg, *Esterhuysen* 8672; Cossacks, *Esterhuysen* 8627; Slanghoek Pile, *Esterhuysen* 1727; Waaihoek Mts., *Esterhuysen* 8327; Milner Peak, *Esterhuysen* 14869.

Flowering Oct.—April. There is a close affinity with *A. bifida* *B. and W.*

54. **A. Dregeana** Sond. in *Harv. and Sond. Fl. Cap.* i, 410 (1860)! **Hartogia Dregeana** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets glabrous. Leaves usually 4—5 mm. long, alternate, ascending, linear, sometimes widening slightly in the upper half, sub-acute, tapering at the base, concave above, glabrous or at first pilose-ciliate, rounded and with many glands beneath. Flowers in terminal clusters. Peduncles 1.5—2 mm. long, glabrous, with oblong ciliate bracteoles at the middle. Sepals 2 mm. long, ovate-lanceolate or oblong-elliptic, obtuse, widely membranous at the margin, ciliate. Petals 3—3.5 mm. long, lanceolate or ovate-lanceolate, tapering into a short narrowly cuneate claw, glabrous. Stamens glabrous. Staminodes 3.5 mm. long, linear-lanceolate, obtuse, tapering into a linear lower part, ciliate on the lower half. Ovary glabrous, with 2 carpels bearing cuneate obtusely pointed and slightly incurved processes. Style glabrous.

VAN RHYNSDORP Div.: Giftberg, *Drège* 7104 (type, in Stockholm, cotypes in Kew Herb., Lund and S. Afr. Mus. Herb.), *Phillips* in Sladen Mem. Exped. 7532.

Flowering Sept.—Nov.

55. **A. bifida** Bartl. and Wendl. *Diosm.* 152 (1824); *Walgate in Fl. Cape Peninsula* 540 (1950). **Diosma bifida** Jacq. *Collect.* iii, 278, t. 20, f. 1 (1789); *Willd. Sp. Pl.* i, 1136 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Roem. and Schultes, Syst. Veg.* v, 461 (1819); *Spreng. Syst. Veg.* i, 786 (1825). **D. umbellata** Thunb. in *Hoffm. Phytogr. Blätter* i, 24 (1803); *Roem. and Schultes* op. cit. 458; *Thunb. Fl. Cap. ed. Schultes* 224 (1823). **Dichosma bifida** DC. ex Loudon, *Hort Brit.* 85 (1830). **Agathosma montana** Schldl. in *Linnaea* vi, 207 (1831)!; *Sond. in Harv. and Sond. Fl. Cap.* 410 (1860). **A. desciscens** Fisch. in *Overgr. Bijdr. Naturk. Wetensch.* vii, 22, t. 2 (1832). **A. lediformis** Eckl. and Zeyher, *Enum.* 109 (1835)!; *Bartl. in Linnaea* xvii, 372 (1843); *Sond. op. cit.* 408. **A. serruriaefolia** Eckl. and Zeyher l. c.! **A. nigromontana** Eckl. and Zeyher, *Enum.* 111!; *Sond. op. cit.* 410. **A. monticola** Sond. *op. cit.* 409! **A. umbellata** Sond. *op. cit.* 408; *Engler in Engl. and Prantl, Pflanzenfam.* iii, §4, p. 150 (1896); *Dümmer in Fed. Rep.* xi, 326 (1912). **A. gracilicaulis** Sond. *op. cit.* 409!. **Hartogia gracilicaulis**, **H. lediformis**, **H. montana**, **H. nigromontana**, **H. umbellata** O. Kze. *Rev. Gen.* i, 101 (1891). **Agathosma taxifolia** Schltr. in *Engl. Bot. Jahrb.* xxvii, 161 (1900)!; *Dümmer op. cit.* 328. **A. stricta** W. Dod in *Journ. Bot.* xxix, 398 (1901); *Dümmer op. cit.* 327; *Walgate in Fl. Cape Peninsula* 540. **A. Bolusii** Dümmer *op. cit.* 331!. **A. capituliformis** var. **caledonensis** Dümmer l. c.! **A. gracillima** Dümmer *op. cit.* 328!. **A. struthioloides** Dümmer *op. cit.* 326!. **A. uncinata** Dümmer *op. cit.* 414!.

Branchlets glabrous, puberulous, pubescent or pilose (usually in

strips alternating with the leaf-bases). Leaves 0·5—1·3 cm. long, alternate, erect-spreading or ascending, often subimbricate, ovate-lanceolate, lanceolate, linear-lanceolate, lanceolate-linear or linear, rarely slightly widened in the upper half, acute, subacute or obtuse, rounded or cuneate at the base, concave above, $\pm$ keeled or rounded beneath, often swollen behind the apex, glabrous or $\pm$ pilose-ciliate, rarely pilose beneath. Flowers in terminal clusters. Peduncles 2—8 mm. long, glabrous, sometimes purplish, with bracteoles on the lower half. Sepals 1·5—3 mm. long, ovate- or oblong-lanceolate, ovate-oblong or ovate, obtuse, acute or acuminate, obtusely keeled, usually with conspicuous glands beneath, glabrous or ciliate, sometimes pubescent above, often hyaline at the margin. Petals 3·5—5·5 mm. long; blade oblanceolate, obovate or obovate-elliptic, very obtuse, often retuse, rarely pilose above and on the margin, with a conspicuous gland behind the apex; claw half to nearly twice as long, narrowly linear, glabrous, or ciliate on the lower half. Stamens glabrous. Staminodes resembling the petals but usually slightly shorter, villous on the lower half. Ovary glabrous, or pilose on the apex, with 3 or, very rarely, 4 carpels bearing oblong or obovate glabrous or $\pm$ pilose processes. Style glabrous or $\pm$ pilose.

BREDASDORP DIV.: Bredasdorp, *Muir* 5013; Agulhas, *Esterhuysen* 7629; Elim, *Bolus* 6780; 9 miles west of Elim, *Salter* 4855; between Elim and "Fairfield," *Bolus* 8529; Elandsberg, *Gillett* 4342; Napier, *Schlechter* 9653 (cotypes of *A. taxifolia* in Kew Herb. and Stockholm); coastal hills between Klein River and Agulhas, *Ecklon and Zeyher* 855.—CALEDON DIV.: hills near Caledon, *Zeyher* 2170 (cotypes of *A. monticola* in S. Afr. Mus. Herb. and Stockholm); Babylons Tower and Hottentots Holland Mts., *Zeyher* 157, 2172; Sir Lowry's Pass, *Barker* 1151, *Bolus* 4116, *Schlechter* 7227, *Stokoe* 8267; Viljoen's Pass, *Hafstrom and Acocks* 787; Houwhoek, *Bolus* 9869, *Galpin* 3874, *Levy's* 3465, *Schlechter* 5509; Palmiet River Mts., *Stokoe* 966; Platteberg, *Stokoe* 9153; Stettynsberg, *Esterhuysen* 11107; River Zonder Einde Peak, *Acocks* 1963, *Stokoe* 9360, *Thorne* in S. Afr. Mus. 45836; Nieuweberg, *Stokoe* 4036, 8307; Kogelberg, *Compton* 16451, *Esterhuysen* 9987, 13334, 13348; Paardeberg Forest Reserve, *Levy's* 8763; Kleinmond, *Esterhuysen* 7626; Hanglip, *Compton* 6105, 13590; Hermanus, *Barker* 1863, *L. Guthrie* in Bolus Herb. 17015, *Bodkin* in Guthrie Herb. 4230, *Bolus* 9857 (type of *A. Bolusii* in Kew Herb., cotypes in Bolus Herb. and Natal Herb.); Genadendal, *Ecklon and Zeyher* 866 (cotypes of *A. montana* in Kew Herb., S. Afr. Mus. Herb. and Stockholm); mountains west of Viljoen's Pass, *Stokoe* 8541; Landdrost Kop, *Esterhuysen* 1426; Onrust River, summit of mountain, *Esterhuysen* 4243; Elgin, *Compton* 16516, *Leighton* 815, *Stokoe* 8268; mountains south of Sir Lowry's Pass, *Stokoe* in Bolus Herb. 17878; between Villiers-

dorp and French Hoek, *Bolus* 5141; Kleinmond, *Compton* 12373, 12811, *Esterhuysen* 7626; near Appel's Kraal, *Zeyher* 2167 (type of *A. gracili-caulis* in Stockholm, cotype in S. Afr. Mus. Herb.); Steenbras, *Thorne* in S. Afr. Mus. Herb. 50412; between Caledon and Genadendal, *Ecklon and Zeyher* 856 (cotypes of *A. serruriaefolia* in S. Afr. Mus. Herb. and Stockholm); hills north-east of the top of French Hoek Pass, *Esterhuysen* 1183; Louw's Hoek Peak, *Stokoe* 9344; near Houwhoek, *Bolus* 9869 (type of *A. capituliformis* var. *caledonensis* in Bolus Herb.); Houwhoek and Zwartberg, *Ecklon and Zeyher* 867 (cotypes of *A. nigromontana* in S. Afr. Mus. Herb. and Stockholm); Palmiet River Mouth, *Levyns* 7758; near Caledon, *Bolus* 8504; base of Buffels Mt., *Pillans* 8300; Zwartberg, *Guthrie* 2481; "Highlands," *Compton* 12281, 14086; "Aries Kraal," *Compton* 16853; Nieuweberg, *Compton* 6742.—CAPE DIV.: Constantiaberg, *Compton* 12535, 14161, 14165, *Esterhuysen* 3834; between Constantiaberg and Steenberg, *Pillans* 8985; Steenberg, *Compton* 16437; Noordhoek Mt., *Barker* 2084; marsh at head of Elsjie's Stream, *Salter* 5700; Kabonkelberg, *Salter* 246/19a; Zwartkop Range, *Walgate* 5; Muizenberg Mt., *Barker* 4215; Klaver Vlei, *Salter* 6424; marsh west of Paul's Berg, *Salter* 7089.—CLANWILLIAM DIV.: between Bergvlei and Langvlei, "Zwartbast Kraal," *Drège*; near "Brakfontein," *Ecklon and Zeyher* 854 (cotypes of *A. lediformis* in Albany Mus., Kew Herb., S. Afr. Mus. Herb. and Stockholm); valley south-east of Uitkyk Pass, *Acocks* 5662; Sneeuwberg, Duivelsgat, *Esterhuysen* 13110; Cederberg, *Thode* A 1973.—LADISMITH DIV.: Roodeberg, *Esterhuysen* 17175.—MALMESBURY DIV.: flats near Mamre, *Niven* 22.—PAARL DIV.: Drakenstein Mts. at French Hoek Pass, *Compton* 6008, *Galpin* 12400; Lower Wellington Sneeuwkop, *Esterhuysen* 12431; Upper Wellington Sneeuwkop, *Esterhuysen* 15024.—RIVERSDALE DIV.: lower slopes of the Langeberg at Garcia's Pass, *Burchell* 6934 (type of *A. struthioloides* in Kew Herb.), 7009, *Bolus* 11242; Witte Els, *Muir* 1267.—STELLENBOSCH DIV.: Helderberg, *Esterhuysen* 14627, *Parker* 3874, *Stokoe* 8269, in Bolus Herb. 17647, 17880; above "Lourensford," *Esterhuysen* 14128; Somerset West, *Parker* 3712; Pic Sans Nom, *Esterhuysen* 12521.—SWELLENDAM DIV.: Potteberg, hills north of "Elandspot," *Pillans* 9408.—TULBAGH DIV.: summit of Vogel Vlei Mts., *Andrae* 634.—WORCESTER DIV.: Witteberg, *Esterhuysen* 9470, *Wasserfall* 641; Bain's Kloof, *Schlechter* 9092; Du Toit's Peak, *Marloth* 2502; Milner Peak, *Esterhuysen* 14251; Mostert's Hoek Twins, *Esterhuysen* 9835; Buffels Hoek Peak, *Esterhuysen* 8404; Wilde Paardeberg, *Stokoe* in Bolus Herb. 17870.

Flowering Jan.—Dec. This is one of the most variable and taxonomically difficult species. The scope of the species is now considerably widened so as to include the many diverse forms. The chief variations

are in the length and width of the leaves and the shape of the lower surface which may be conspicuously keeled or rounded. The sepals, also, vary considerably in shape. The typical form seems to be the one which is frequent on damp flats in the Caledon Division. The forms with hairs on the leaves and floral parts occur at higher altitudes with different climatic conditions. Several forms appear distinct enough for specific rank, but they are connected through many other forms.

56. **A. stenopetala** Steud. *Nom. ed.* 2, i, 36 (1840). **Diosma stenopetala** Steud. in *Flora* 1830, p. 549. **Agathosma filipetala** Eckl. and Zeyher, *Enum.* 112 (1835)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 411 (1860). **Hartogia stenopetala** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets puberulous or pubescent. Leaves usually 0·8—1·3 cm. long, alternate, crowded, erect-spreading, linear or lanceolate-linear, obtuse, rounded at the base, slightly convex, flat or slightly concave above, with a slightly raised nerve and scattered glands beneath, glabrous, or sometimes pilose at the margin and beneath on the nerve. Flowers in terminal clusters. Peduncles 3—5 mm. long, pubescent, with minute bracteoles at or shortly below the middle. Sepals 2—3 mm. long, linear-lanceolate, obtuse or almost so, concave above, glabrous or ciliate, obtusely keeled. Petals 4·5—5·5 mm. long; blade oblanceolate-linear, obtuse; claw as long or slightly longer, very slender, pilose throughout or only on the lower half. Stamens with filaments pilose on the lower half. Staminodes 4—5·5 mm. long, with a linear blade and slightly longer pilose claw. Ovary glabrous, with 2 carpels bearing oblong obtuse processes. Style glabrous.

HUMANSDORP DIV.: hills near Humansdorp, *Kennedy* in MacOwan Herb. 898, in S. Afr. Mus. Herb. 30655.—PORT ELIZABETH DIV.: Port Elizabeth, *Salter* 372/31, *Kemsley* 74, *Fries*, *Norlindh* and *Weimarck* 157; sand dunes near Port Elizabeth, *Marloth* 12605; Humewood, *Paterson* 784; near Schoenmakers Kop, in sand, *L. Bolus* in Bolus Herb. 23972.—UITENHAGE DIV.: between Coega and Sundays rivers, "Grassrug," calcareous hills, *Ecklon* and *Zeyher* 881 (type of *A. filipetala* in Stockholm, cotype in S. Afr. Mus. Herb.).

Flowering June—Nov.

57. **A. linifolia** Licht. ex Bartl. and Wendl. *Diosm.* 187 (1824)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 411 (1860). **Bucco linifolia** Roem. and Schultes, *Syst. Veg.* v, 448 (1819). **Hartogia linifolia** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets sparsely pubescent on strips alternating with the leaf-bases. Leaves 1—2 cm. long, alternate, erect-spreading, linear or linear-

lanceolate, acute, rounded or shortly cuneate at the base, flat or slightly convex above, often slightly recurved and sparsely pilose at the margin, with a prominent nerve and impressed scattered glands beneath. Flowers in terminal clusters. Peduncles 3—4 mm. long, glabrous, with bracteoles at the middle or on the lower half. Sepals 1.75 mm. long, lanceolate, subacute, keeled, glabrous. Petals 4 mm. long; blade obovate or oblong-elliptic, obtuse; claw $\frac{2}{3}$ as long, narrowly linear, very sparsely ciliate. Stamens with sparsely ciliate filaments. Staminodes 3.5 mm. long, oblanceolate- or obovate-oblong in the upper half, obtuse, gland-tipped, linear and ciliate in the lower half. Ovary with 2 carpels bearing linear-oblong acute processes pilose on the apex. Style glabrous.

SWELLENDAM DIV.: Swellendam, *Fry* in Galpin Herb. 4990; Duyvelsbosch, *Lichtenstein* (cotype in Stockholm); above Voormansbosch and Duyvelsbosch, *Beil* in Ecklon and Zeyher Herb. 877.

Flowering July, Aug.

58. ***A. virgata*** Bartl. and Wendl. *Diosm.* 139 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 412 (1860); *Dümmer in Fed. Rep.* xi, 330 (1912). ***Diosma virgata*** Lam. *Encycl. Meth.* ii, 286 (1786); *Thunb. Prodr.* 84 (1794); *ej. Diss. Diosm.* 4, 8 (1797); *Willd. Sp. Pl.* i, 1134 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Roem. and Schultes, Syst. Veg.* 455 (1819); *Thunb. Fl. Cap. ed. Schultes* 22 (1823); *DC. Prodr.* i, 717 (1824). ***Bucco Lamarckiana*** Roem. and Schultes, *Syst. Veg.* v, 447 (1819). ***Diosma parviflora*** Willd. ex Roem. and Schultes *op. cit.* 462. ***Agathosma parviflora*** Bartl. and Wendl. *Diosm.* 181; *Sond. op. cit.* 409 incl. var. ***glabrata***. ***A. patentissima*** Eckl. and Zeyher, *Enum.* 114 (1835)! ***A. aulonophila***, ***A. berzeliaefolia*** Eckl. and Zeyher, *Enum.* 115! ***A. commutata*** *Sond. op. cit.* 412!; *Dümmer l.c.* incl. vars. ***A. cuspidata*** var. ***glabra*** *Sond. op. cit.* 432! ***Hartogia aulonophylla***, ***H. parviflora*** O. Kze. *Rev. Gen.* i, 101 (1891).

A usually laxly branched shrub about 1 m. high. Branchlets glabrous, or sometimes pubescent on strips alternating with the leaf-bases. Leaves 3—8 mm. long, alternate, ascending, often subimbricate, linear or lanceolate-linear, acute, acuminate, subacute or obtuse, tapering shortly or rounded at the base, concave above, $\pm$ keeled beneath on the upper half, glabrous, or sometimes ciliate on the lower half. Flowers in terminal clusters, or the lower axillary. Peduncles usually 5—6 mm. long, glabrous or sometimes pubescent, often purplish, with slender, sometimes vestigial, bracteoles on the lower half. Sepals 0.75—1.5 mm. long, lanceolate or ovate-lanceolate, acute or obtuse, concave above, obtusely keeled, glabrous. Petals 4—6 mm. long; blade elliptic-oblong or oblanceolate, obtuse; claw half as long or slightly longer, narrowly linear or subfiliform, $\pm$ pilose-ciliate on the lower half. Stamens glabrous or

sparsely pubescent on the filaments. Staminodes 4—5.75 mm. long, petaloid, oblong, linear or oblanceolate in the upper half, obtuse or rarely acute, narrowly linear or subfiliform and villous in the lower half, with a conspicuous gland behind the apex. Disk crenulate. Ovary glabrous, with 2 or, very rarely, 3 carpels bearing oblong or obovate processes. Style glabrous or very sparsely pubescent on the lower half.

CALEDON DIV.: mountains at Genadendal, *Burchell* 7600, *Gillett* 888, *Schlechter* 10287; Stettynsberg, *Esterhuysen* 11133, 15623; hills near the mouth of the Klein River, *Ecklon and Zeyher* 904.—CERES DIV.: near Ceres, *Bolus* 8370, 8395, *Hutchinson* 605, *Levyns* 1074, 4677; Castle Rocks, *Esterhuysen* 14151, 14159; Michell's Pass, *Esterhuysen* 6201, *Compton* 6717, 20157, *Schlechter* 8938, *Walgate* 243, 359; Gydouw Pass, *Esterhuysen* 3956, *Leipoldt* 3843, *Isaac* in *Bolus* Herb. 2395; 7 miles west of Gydouw Pass, *Hutchinson* 1051; Witzenberg Vlake, *Compton* 13011, 21019; De Keur, *Compton* 6513.—CLANWILLIAM DIV.: east slopes of Grasruggens Mt., *Pillans* 8718; "The Baths," *Compton* 5382.—MALMESBURY DIV.: between Bokbaai and Darling, *Esterhuysen* 3831.—MONTAGU DIV.: Rabiesberg, *Compton* 5791.—PAARL DIV.: French Hoek Pass, *Acocks* 3839; French Hoek Forest Reserve, *Compton* 13838, *Pillans* 9516, *Leighton* in *Bolus* Herb. 23950; Wemmershoek Mts., *Esterhuysen* 9117, *Wasserfall* 547; Groot Drakenstein Mts., *Esterhuysen* 14053; Bailey's Peak, *Esterhuysen* 8519a; French Hoek, *Phillips* 1082.—PIKETBERG DIV.: mountains above Porterville, *Esterhuysen* 16144, 16093, 17296, *Stokoe* 8271, *Schlechter* 10719, *Edwards* in *Bolus* Herb. 24437; "The Rest," *Compton* 4321, *Gillett* 3736.—SWELLENDAM DIV.: mountains near Swellendam, *Mund* in *Ecklon and Zeyher* Herb. 896 (cotype of *A. parviflora* var. *glabrata* in *S. Afr. Mus. Herb.*).—TULBAGH DIV.: near Tulbagh Waterfall, *Ecklon and Zeyher* 900 (cotype of *A. patentissima* in *S. Afr. Mus.*), 903 (cotypes of *A. aulonophila* in *S. Afr. Mus. Herb.* and *Stockholm*), *Bolus* 5142; near the Winterhoek, *Ecklon and Zeyher* 906 (cotypes of *A. berzeliaefolia* in *S. Afr. Mus. Herb.* and *Stockholm*); Vogel Vlei Mts., *Andrae* 652.—WORCESTER DIV.: Bain's Kloof, *Barker* 4243, *Compton* 16241, 17504, 18629, *Salter* 4775, *Schlechter* 9092; Du Toit's Kloof, *Esterhuysen* 16068, *Levyns* 8613; Molenaarsberg, *Compton* 20141, *Esterhuysen* 14067; Waaihoek Mt., *Esterhuysen* 8290, 14839, *Wasserfall* 818; Chavonnesberg, *Esterhuysen* 8193, 14586; Wabooms River, *Esterhuysen* 8958; Malkops Kloof, *Esterhuysen* 3136; Fonteintjiesberg, *Esterhuysen* 10950; Matroosberg, above Groothoek Kloof, *Esterhuysen* 14184, 14225; below Milner Peak, *Esterhuysen* 14249; Orchard Mt., *Esterhuysen* 10347; Hex River Mts., Els Kloof, *W. Dod* 4033; near De Doorns, *Bolus* 13083; Sebastian Kloof, *Compton* 11734; east slopes of Prospect Peak, *Esterhuysen* 15904; Waaihoek Peak, *Esterhuysen* 15120.

Flowering April—Dec. This species may be an advanced form of *A. bifida* with mostly narrower leaves and with a reduced ovary. The leaves are sometimes indistinguishable from those of the narrow-leaved forms of *A. bifida*.

59. *A. tulbaghensis* Dümmer in *Ann. Bolus. Herb.* iii, 48 (1920)!

A much branched shrub 0·75—1 m. high, with branchlets sparsely pilose on strips alternating with the leaf-bases. Leaves 0·6—1 cm. long, alternate, ascending or erect-spreading, slightly incurved, linear sometimes widening slightly in the lower or upper half, obtuse or subacute, tapering into a wide petiole, deeply concave above, involute at the margin, pilose-ciliate, rounded and with many prominent glands beneath. Flowers in terminal clusters. Peduncles about 5 mm. long, glabrous, with ciliate bracteoles on the lower half. Sepals 2 mm. long, ovate-lanceolate, obtuse, ciliate or glabrous, rounded and with conspicuous glands beneath. Petals 3 mm. long; blade elliptic-oblong, obtuse; claw about half as long, narrowly linear, sparsely ciliate. Stamens glabrous. Staminodes 3 mm. long, petaloid; blade linear-oblong, emarginate, with a gland in the sinus; claw half as long, linear, ciliate. Ovary glabrous, with 2 or very rarely 3 carpels bearing subclavate processes. Style glabrous.

TULBAGH DIV.: Little Winterhoek, *Marloth* 493 (type, in S. Afr. National Herb., cotype in Bolus Herb.); Great Winterhoek, near the summit, *Phillips* 1718.

Flowering Nov.—Jan. The affinity seems to be with *A. bifida* rather than with any of the other bicarpellate species.

60. *A. Esterhuyseniae* sp. nov.; ramulis puberulis et pilosis; foliis alternatis linearibus obtusis, supra concavis glabris, margine arte involutis, subtus tuberculatis hispidis; floribus terminalibus; pedunculis hispidulis bracteolatis; sepalis oblanceolato-oblongis obtusis pubescentibus ciliatis, margine hyalino; petalis anguste obovatis, infra medium unguicularibus; staminibus glabris; staminodis oblanceolatis, infra medium pilosis anguste unguicularibus; ovario 2- vel 3- loculari puberulis vel pubescentibus cornubus rotundatis minutis, stylo sparse pubescente.

Shrub about 40 cm. high, with slender puberulous and sparsely pilose branchlets. Leaves 4—6 mm. long, alternate, erect-spreading, slightly incurved, linear, obtuse, rounded at the base, concave and glabrous above, with closely involute margins, rounded, tubercled and hispid beneath, with prominent glands. Flowers in terminal clusters. Peduncles 0·75—1 mm. long, hispidulous, with linear pilose bracteoles near the apex, subtended by linear pilose-ciliate bracts. Sepals 1·5—2 mm. long,

oblanceolate-oblong, obtuse, pubescent above, hyaline at the margin, pilose-ciliate, rounded and sparsely pubescent beneath, gibbous and with prominent glands behind the apex. Petals 6 mm. long; blade narrowly obovate; claw $1\frac{1}{2}$ times as long, slender, pilose on the lower half. Stamens glabrous. Staminodes 3—3.5 mm. long, with an oblanceolate blade and slender pilose claw adnate almost half the length to the petals. Disk conspicuous, crenulate. Ovary $\pm$ puberulous or pubescent, with 2 or rarely 3 carpels bearing minute rounded processes. Style sparsely pubescent.

CLANWILLIAM Div.: Cederberg, Uitkyk Peak, summit, *Esterhuysen* 7375; between Heuning Vlei and Crystal Pool, *Esterhuysen* 7533 (type, in Bolus Herb.); Krakadouwsberg, *Esterhuysen* 7508, 14317.

Flowering Dec. The affinity is with *A. krakadouwensis* Dümmer from which it differs chiefly by the leaves being tubercled, the staminodes being partly adnate to the petals, by the carpels being fewer, and by the minute processes on the carpels.

61. *A. pubigera* Sond. in *Harv. and Sond. Fl. Cap.* i, 414 (1860)! *Hartogia pubigera* O. Kze. *Rev. Gen.* i, 101 (1891). *Agathosma decipiens* Dümmer in *Fed. Rep.* xi, 416 (1912)!

A low much branched shrub with puberulous branchlets. Leaves 5—8 mm. long, alternate, erect-spreading, often slightly recurved, oblong, elliptic-oblong, oblanceolate or oblong-oblanceolate, acute, subacute or obtuse, rounded or shortly tapered at the base, entirely puberulous, concave above, obtusely keeled and with conspicuous glands beneath. Flowers in terminal clusters. Peduncles 2.5—6 mm. long, puberulous, with bracteoles on the lower half. Sepals 1—1.5 mm. long, oblong, ovate-lanceolate or ovate, obtuse or subacute, convex and puberulous beneath. Petals 4—5.5 mm. long, glabrous; blade elliptic or obovate, very obtuse; claw about $1\frac{1}{2}$ times as long, narrowly linear. Stamens glabrous. Staminodes 3 mm. long, lanceolate-linear, slightly concave above, pubescent above and beneath. Disk with deltoid teeth at the margin. Ovary puberulous, with one carpel without a process. Style sparsely pubescent on the lower half. Fruit elliptic, tubercled and hispid, with a clavate hispid process.

CLANWILLIAM Div.: Ezelsbank, *Drège* 7120 (type of *A. pubigera* in Stockholm, cotype in Kew Herb.); Koudeberg, *Schlechter* 8760 (type of *A. decipiens* in Kew Herb., cotypes in Albany Mus., Bolus Herb., S.A. National Herb. and Stockholm); Kromme River, *Acocks* 3124, *Leighton* in Bolus Herb. 21588; Heuning Vlei, *Esterhuysen* 3132, 8058; between Heuning Vlei and Koupoort, *Esterhuysen* in Bolus Herb. 23980; between Pakhuis and Heuning Vlei, *Esterhuysen* 7459; Boontjieskraal, *Esterhuysen* 8062; Tafelberg Area, *Esterhuysen* 14323.

Flowering Aug., Sept. The most distinctive character is the toothing of the disk.

62. **A. Stokoei** sp. nov.; ramulis pilosis; foliis alternatis linearibus obtusis, supra concavis glabris vel pilosis saepe margine pilosis, subtus obtuse convexis; floribus terminalibus; pedunculis pilosis bracteolatis; sepalis ovatis obtusis margine hyalinis, subtus convexis pilosis; petalis glabris, supra medium obovatis, infra medium linearibus; staminibus glabris; staminodis linearibus glabris, basi versus attenuatis, apice glandula rotundata notatis; ovario 2-loculari, apice piloso cornubus late oblongis; stylo glabro.

A very much branched shrub usually about 30 cm. high, with slender pilose branchlets. Leaves 4—8 mm. long, alternate, erect-spreading, linear, obtuse, rounded at the base, concave and glabrous or pilose above, rounded and with scattered glands beneath, often pilose at the margin. Flowers in terminal clusters. Peduncles 3·5 mm. long, pilose, with slender pilose bracteoles on the upper half. Sepals 1·5 mm. long, ovate, obtuse, hyaline at the margin, rounded and pilose beneath. Petals 3·5 mm. long, glabrous; blade obovate, very obtuse; claw half as long, linear. Stamens glabrous. Staminodes 2·5 mm. long, linear, tapering to a slender base, glabrous, tipped with a round gland. Ovary pilose on the apex, with 2 carpels bearing widely oblong processes pilose on the apex. Style glabrous.

CALEDON DIV.: Hottentots Holland Mts., *Stokoe* 868, 8287 (type, in Bolus Herb.), 8288.

Flowering Nov. The affinity is with *A. bifida* from which it is distinguished by distinctly hyaline margins of the sepals, and by a bicarpellate ovary.

63. **A. aemula** Schltr. in *Engl. Bot. Jahrb.* xxvii, 160 (1899)!

Branchlets glabrous or rarely villous. Leaves usually 4—6 mm. long, alternate, ascending, linear, subacute, tapering at the base, concave above, glabrous or sometimes villous, rounded-convex and with many glands beneath. Flowers in terminal clusters. Peduncles 0·5—1·5 mm. long, glabrous or puberulous, with slender puberulous bracteoles at or near the apex. Sepals 1·5—2·5 mm. long, ovate- or oblong-lanceolate, or oblong-linear, obtuse, membranous at the margin, ciliate, sometimes sparsely pilose above, widely convex and with 2 rows of glands beneath. Petals 4—6 mm. long, spatulate, very obtuse, often retuse, glabrous or sparsely pilose on the very slender basal part. Stamens glabrous. Staminodes 2·5—3·5 mm. long, linear-spatulate, pilose on the lower half. Ovary glabrous, or pilose on the upper half, with 3 carpels bearing oblong- or linear-clavate processes. Style pilose except towards the apex.

CLANWILLIAM DIV.: Pakhuis, *Barker* 4712, *Compton* 9357, 20927, 20934, *Esterhuysen* 3134, *Leipoldt* in *Bolus Herb.* 23948, *Schlechter* 8609 (cotypes in Albany Mus., *Bolus Herb.*); between Pakhuis and Heuning Vlei, *Esterhuysen* 7433; between Heuning Vlei and Boontjes Kloof, *Esterhuysen* 7518; Northern Cederberg, Koupoort, *Esterhuysen* 12133.

Flowering Sept.—Dec.

64. **A. scaberula** *Dümmer* in *Ann. Bolus Herb.* iii, 47 (1920)!

A rigid shrub about 20 cm. high, with hispid branchlets. Leaves 3—5 mm. long, alternate, ascending, subimbricate, ovate, acute, rounded or subcordate at the base, slightly convex and smooth above, incurved above the middle, with acute papillae on the margin, nerve-keeled and rough with papillae beneath, gibbous behind the apex. Flowers in terminal clusters. Peduncles 0.5—1 mm. long, strigillose, with linear basal bracteoles pilose beneath on the nerve and margin. Sepals 2.5 mm. long, linear-oblong, subacute, trinerved, incurved at the apex, ciliate, pilose beneath on the upper half. Petals 5.5 mm. long; blade oblanceolate-oblong, obtuse; claw twice as long, slender, ciliate. Stamens sparsely strigillose on the filaments. Staminodes 4.5 mm. long, adhering to the petals at the base, composed of an oblanceolate blade and a slender ciliate claw 3 times as long. Ovary with 3 carpels bearing elliptic, sometimes pilose, processes. Style glabrous.

RIVERSDALE DIV.: near Albertinia, Bovenplaats, *Muir* 1255 (type, in *Bolus Herb.*, cotypes in Albany Mus. and S. Afr. National Herb.).

Flowering Nov. The affinity is obviously with *A. eriantha*, and it is certainly close.

65. **A. robusta** *Eckl. and Zeyher*, *Enum.* 110 (1835)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 430 (1860). **Hartogia robusta** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets pubescent. Leaves 5—7 mm. long, alternate, erect, subimbricate, linear-lanceolate, acute, navicular, rounded at the base, slightly incurved, $\pm$ gibbous behind the apex, glabrous above, rather acutely keeled, pilose on the keel and margin, with scattered glands beneath. Flowers in terminal clusters. Peduncles 8 mm. long, villous, with slender bracteoles near the base. Sepals 2.5 mm. long, lanceolate-ovate, subacute, sometimes slightly incurved and gibbous behind the apex, concave and pubescent above, obtusely keeled and villous beneath. Petals 5.5 mm. long, glabrous; blade subrotund; claw almost $1\frac{1}{2}$ times as long, linear. Stamens glabrous. Staminodes 3.25 mm. long, oblanceolate-oblong, obtuse, with a gland behind the apex, tapering to a slender base, villous above on the lower half. Ovary sparsely pilose on the apex, with 2 carpels bearing oblong obtuse processes. Style glabrous.

SWELLENDAM DIV.: hills near Swellendam, *Mund* in Ecklon and Zeyher Herb. 863 (cotypes in S. Afr. Mus. Herb. and Stockholm).

Flowering Oct. All the specimens seen were gathered from cropped, dwarf plants.

66. **A. eriantha** Steud. *Nom. ed.* 2, i, 35 (1841). **Diosma eriantha** Steud. in *Flora* 1830. p. 550. **Agathosma serpyllacea** var. **latifolia** Schldl. in *Linnaea* vi, 205 (1831)! **A. Schlechtendahliana** Eckl. and Zeyher, *Enum.* 109 (1835)! absque descr. **A. Schlechtendalii** Sond. in *Harv. and Sond. Fl. Cap.* 407 (1860)! **Hartogia eriantha** O. Kze. *Rev. Gen.* i, 101 (1891). **Agathosma viscida** Dümmer in *Fed. Rep.* xi, 324 (1912)!

Branchlets rigid, glabrous except for coarse hairs at the base of the leaves. Leaves 5—7 mm. long, alternate, erect-spreading, crowded, slightly incurved in the upper half, lanceolate-ovate, ovate-lanceolate or elliptic-oblong, acute, rounded at the base, concave and glabrous above, with long coarse and rigid hairs on the margin, stoutly keeled, gibbous behind the apex, with rigid coarse hairs on the keel, with small scattered glands beneath. Flowers in terminal clusters. Peduncles 1·5—2 mm. long, sparsely hispid, with conspicuous bracteoles on the lower half. Sepals 2·5—3 mm. long, oblong-lanceolate, acute, ciliate, with an obtuse sparsely pilose keel on the upper half. Petals 6—8 mm. long; blade narrowly ovate, obovate, elliptic or oblong-ovate, obtuse; claw twice as long, filiform, villous. Stamens with villous filaments. Staminodes 5·25—6 mm. long, adnate to the lower half of the petals; blade linear-oblong or narrowly obovate-oblong, obtuse; claw twice as long, filiform, villous. Ovary glabrous, with 3 carpels bearing oblong processes. Style glabrous.

South Africa: without precise locality, *Thorn* 39 (type of *A. viscida* in Kew Herb.).—BREDASDORP DIV.: Kliprug, *Henrici* 3715.—SWELLENDAM DIV.: calcareous hills between the Breede and Duyvenhoeks rivers, *Ecklon and Zeyher* 859 (type of *A. Schlechtendalii* in Stockholm, cotype in S. Afr. Mus.).

Flowering Sept.—Nov.

67. **A. serpyllacea** Licht. ex Roem. and Schultes, *Syst. Veg.* v, 447 (1819); Bartl. and Wendl. *Diosm.* 153 (1824); Schldl. in *Linnaea* vi, 204 (1831) incl. vars.; Sond. in *Harv. and Sond. Fl. Cap.* i, 427 (1860) incl. vars.; Dümmer in *Fed. Rep.* xi, 412 (1912) incl. var. **Bartlingiana**; Walgate in *Fl. Cape Peninsula* 542 (1950). **Bucco cuspidata** Wendl. *Collect.* iii, 17, t. 81 (1819). **Diosma stricta** Willd. ex Roem. and Schultes, *Syst. Veg.* v, 462. **D. bruniades** Link, *Enum. Hort. Berol.* i, 237 (1821). **Agathosma cuspidata** Bartl. and Wendl. *Diosm.* 182, t. B. f. vii, 1—8 (1824); Sond. *op. cit.*

432, excl. var. **glabra**; *Dümmer op. cit.* 420. **A. rubra** Willd. and Licht. ex Bartl. and Wendl. *Diosm.* 178; *Sond. op. cit.* 432. **Barosma bruniades Hoffm. Verz. Pfl. Nachtr.** i, 128 (1826). **Agathosma Thunbergiana** Schldl. in *Linnaea* vi, 204 (1831) excl. syn. *Thunb.*, non Bartl. and Wendl. **A. Eckloniana** Schldl. *op. cit.* 207; *Sond. op. cit.* 429. **A. Bartlingiana** Eckl. and Zeyher, *Enum.* 114 (1835)! partim. **A. hyponeura** Eckl. and Zeyher. l.c.! **A. glabra** Eckl. and Zeyher *op. cit.* 116! **A. ambigua** Sond. *op. cit.* 426; *Dümmer in Fed. Rep.* xi, 411, incl. var. **Hartogia ambigua**, **H. cuspidata**, **H. Eckloniana** O. Kze. *Rev. Gen.* i, 101 (1891). **H. rubra**, **H. serpyllacea** O. Kze. *op. cit.* 102. **Agathosma filamentosa** Schltr. in *Engl. Bot. Jahrb.* xxiv, 439 (1898)!; *Dümmer op. cit.* 413. **A. Dodii** *Dümmer loc. cit.*!; *Walgate in Fl. Cape Peninsula* 542. **A. gibbosa** *Dümmer loc. cit.*! **A. brevistrigillosa** *Dümmer op. cit.* 417! **A. hortensis** *Dümmer op. cit.* 420! incl. var. **spontanea**.

A low shrub. Branchlets $\pm$ pubescent or villous, with spreading or ascending hairs, sometimes glabrous. Leaves mostly 0.5–1 cm. long, alternate, erect-spreading or, less often, ascending, linear or lanceolate-linear and acuminate, lanceolate, linear- or oblong-lanceolate and acute, subacute or acuminate, rarely ovate, rounded at the base, often somewhat incurved above the middle, $\pm$ concave above (mostly in the upper half), rarely subcucullate at the apex, with a prominent nerve beneath, gibbous behind the apex, sometimes subtrigonus and slightly keeled (in the narrower forms), often $\pm$ revolute at the margin, entirely glabrous, puberulous, pubescent or pilose, or pilose at the margin and beneath on the nerve, with impressed glands at the margin and on the keel. Flowers in terminal clusters, or the lower axillary. Peduncles usually 3–6 mm. long, $\pm$ pubescent, sparsely pilose or glabrous, with bracteoles at the middle or on the lower half. Sepals usually 1.5–3 mm. long, up to 4 mm. long, lanceolate, linear- or ovate-lanceolate, ovate or deltoid-ovate, acuminate, acute, subacute or obtuse, obtusely keeled $\pm$ ciliate, rarely glabrous or sparsely pubescent beneath. Petals 3.5–5.5 mm. long; blade oblong-elliptic, obovate, widely obovate or subrotund, abruptly or gradually passing into the claw, glabrous, $\pm$ pubescent above or rarely ciliate on the lower half; claw $\frac{1}{2}$ – $1\frac{1}{2}$ times as long, narrowly linear or subfiliform, glabrous or ciliate. Stamens glabrous. Staminodes 1.75–4.5 mm. long, linear, linear- or lanceolate-oblong, attenuate, acute or obtuse, cuneate or subfiliform at the base, ciliate except at the base and apex, or ciliate only on the lower or upper half, with an apical gland. Ovary hispid, pubescent or pilose on the apex, with 3 carpels bearing oblong processes usually pilose on the apex. Style glabrous.

South Africa: without precise locality, *Thorn* 474.—BREDASDORP Div.: Elim; *Bolus* 19164, *Compton* 9086, *Guthrie* 3753, 3854, *Schlechter*

7678 (cotypes of *A. filamentosa* in Albany Mus. and Bolus Herb.); Bredasdorp, *Compton* 9145, 9181; The Poort, *Barker* 2505, *Compton* 14731, *Esterhuysen* 3009; Strand Kloof, *Barker* 2471; Ratel River, *Compton* 14773; Sandhoogte Farm, *Smith* 3003; Agulhas, *Ecklon and Zeyher* 908 (cotypes of *A. glabra* in S. Afr. Mus. and Stockholm), *Esterhuysen* 7624; near Struys Bay, *Esterhuysen* 7623; Potberg, *Compton* 19536.—CALEDON DIV.: Houwhoek, *Ecklon and Zeyher* 899 (cotypes of *A. Eckloniana* in S. Afr. Mus. and Stockholm), *MacOwan* in S. Afr. Mus. Herb. 14490, *Pillans* 9858, *Bolus* 9922 (type of *A. brevistrigillosa* in Kew Herb., cotype in Bolus Herb.); between Bot River and Onrust River, *Zeyher* 2169; Hottentots Holland Mts., *Ecklon and Zeyher* 894 (cotypes of *A. hyponeura* in S. Afr. Mus. and Stockholm), *Hutchinson* 316; Klein River Mts., *Ecklon and Zeyher* 898 partly (cotype of *A. Bartlingiana* in Stockholm); near Gansbaai, Baviaansfontein, *Stokoe* 8275; Onrust River, *Esterhuysen* 4249; Rooi Els, *Compton* 15997, *Esterhuysen* 14101, *Leipoldt* 4176, *Leighton* in Bolus Herb. 23989; Frikiesbaai, *Leighton* 2510; near Stanford, Platrug, *Compton* 18248; Hanglip, *Compton* 13560; near Hawston, *Schlechter* 9478; near Elgin, *Bolus* 5143, *Compton* 16523, *Leighton* 812; Babylons Tower, *Bolus* 9898; near Caledon, *Bolus* 9892 (type of *A. pulcherrima* in Kew Herb., cotype in Bolus Herb.).—CAPE DIV.: Simon's Bay, *Wright* 649; hills near Simonstown, *Lamb* 2656; Hout Bay, *Bond* 442, *Compton* 5314, 11291, 13332, *Esterhuysen* 7645, *Schlechter* 1217; near Llandudno, *Hutchinson* 546; Hout Bay Nek, *Hutchinson* 101; Karbonkelberg, *Compton* 6397, 6398, 13269, 13290, 13630, *Esterhuysen* 7978; Cape Flats, *Isaac* in Bolus Herb. 23990; Cape of Good Hope, *Esterhuysen* 7979, *Fries*, *Norlindh and Weimarck* 1676; near Kommetje, *E. Pillans* in *Pillans* Herb. 1930, *Salter* 6378, *Walgate* 49; Klein Rondevlei, *Walgate* 64; above Buffels Bay, *Esterhuysen* 7980, *Walgate* 62; hills near Fish Hoek, *Bolus* 4840, *Walgate* 50; Glencairn, *Esterhuysen* 6014; Zwartklip, *Compton* 18136, *Leighton* 1781; flats 3 miles east of Mowbray, *Pillans* 1901; Lion's Head and Table Mt., *Ecklon and Zeyher* 895; Hangberg, *Pillans* 8986; Durbanville, *Acocks* 2537, 4972, *Barker* 1762; Kanonberg, *Pillans* 6642; near mouth of the Eerste River, *Pillans* 9992.—CLANWILLIAM DIV.: Cederberg, *Algeria*, *Lervyns* 2192; east slopes of Grasruggens Mt., *Pillans* 8721.—HUMANSDORP DIV.: mountains near Humansdorp, *Kennedy* in S. Afr. Mus. Herb. 30728; Assegai Bush, *Esterhuysen* 6725.—MALMESBURY DIV.: Geelbek, *Barker* 4611; Riebeeck Kasteel, *Compton* 11714, *Esterhuysen* 6047; between Groenkloof and Saldanha Bay, *Drège* 7087; Bokbaai, *Esterhuysen* 3828; Groenkloof and Zwartland, *Ecklon and Zeyher* 897.—MOSSEL BAY DIV.: near the mouth of the Gouritz River and at Fish Bay, *Drège* 7091 (type of *A. gibbosa* in Kew Herb., cotypes in Lund, S. Afr. Mus. Herb. and Stockholm).—PAARL DIV.: Paarl Mt.,

Drège 7106 partly; west entrance to Du Toit's Kloof, *Pillans* 8474; ravine below Haalhoek Spitzkop, *Esterhuysen* 13516, 13517; Haalhoek Sneeuwkop, *Esterhuysen* 9569, 9576; Du Toit's Kloof, *Esterhuysen* 9691, 12347; Dal Josaphat, *Tyson* 916; French Hoek Pass, *Compton* 5784, *Levyns* in *Bolus* Herb. 23960, *Bolus* 22925; French Hoek, *Lamb* 2193; Wemmershoek Peak, *Esterhuysen* 11233.—PIKETBERG DIV.: Kapiteins Kloof, *Pillans* 8018, *Stokoe* 8285; slopes near Goedverwacht, *Bolus* 8423 (type of *A. hortensis* var. *spontanea* in *Bolus* Herb.).—RIVERSDALE DIV.: Albertinia, *Rogers* 16701; between Albertinia and the coast, *Muir* 1109; near Albertinia, "Kleinplaats," *Muir* 1626; coast belt, Elandskop, *Muir* 4488; hills at Melkhoutfontein, *Muir* 2443 (possibly a cross with *A. Dielsiana*), 5035; Landkraal, *Muir* 4490.—ROBERTSON DIV.: Bushmans Kloof Pass, *Compton* 11900, 11903, *Levyns* 9217; between McGregor and Stormsvlei Kloof, *Barker* 1152, *Esterhuysen* 7628.—STELLENBOSCH DIV.: Jonkershoek, *Levyns* 7384, *Walgate* 69, 1004; Hells Hoogte, *Walgate* in *Bolus* Herb. 23994; flats at Faure, *Esterhuysen* 1934; above "Lourensford," *Esterhuysen* 1427, *Stokoe* 8951; Sir Lowry's Pass, *Levyns* 2543, *Barker* 2513, *Acocks* 5209, *Bolus* 5566, *Guthrie* 2480; Helderberg, *Esterhuysen* 14640, *Parker* 4255, *Pillans* 9995; "Elsenburg," *Penfold* 149, 150; Stellenbosch, *Duthie* 18613; Stellenbosch Mt., *Garside* 194; Somerset West, *Parker* 3540, 3712; near mouth of the Eerste River, *Pillans* in *Bolus* Herb. 18451; near Somerset Strand, *Parker* 3580; Simonsberg, *Compton* 14198; Steenbras River Mouth, *Walgate* 286.—SWELLENDAAM DIV.: Breede River, *Mund* 6; Swellendam *Henrici* 3697, *F. Bolus* in *Bolus* Herb. 7306; Sondagsvlakte, *Ecklon and Zeyher* 876; Rivier Zonder Einde Peak, *Stokoe* 9065; Langebergen, *Bolus* 7306; Voormansbosch, *Ecklon and Zeyher* 2618.—TULBAGH DIV.: Nieuwe Kloof, *Burchell* 989 partly; Ceres Road (Wolsley), *Schlechter* 8978; slopes above Saron, *Schlechter* 10670, *Stokoe* 8281; Tulbagh, *L. Bolus* in *Bolus* Herb. 14020, 16288; near Tulbagh Waterfall, *Hutchinson* 386.—WORCESTER DIV.: between Bain's Kloof and Worcester, *Leighton* 1989; Brandwacht, *Esterhuysen* 8168; Bain's Kloof, *Grant* 2289.

Flowering Jan.—Dec. This is one of the most plastic and variable species with a continuous series of leaf-shapes connecting the extremely wide, in some of the coastal forms, with the extremely narrow, in some of the inland forms. The shapes of the petals and staminodes have no constant relation to the shapes of the leaves or sepals. It has not been possible to isolate any reliable combinations of characters which could be used in forming varietal groups.

67 (a). *A. propinqua* *Sond. in Harv. and Sond. Fl. Cap.* i, 423 (1860)!; *Dümmer in Fed. Rep.* xi, 408 (1912). *Hartogia propinqua* *O. Kze. Rev. Gen.* i, 101 (1891).

A low shrub rarely exceeding 30 cm. in height. Branchlets puberulous or pubescent. Leaves 3·5—6 mm. long, alternate, ascending or erect-spreading, lanceolate or ovate-lanceolate, obtuse or acute, rounded at the base, concave above, with stalked glands on the margin, usually ciliate, with a prominent keel slightly swollen behind the apex, with inconspicuous glands beneath, usually pilose on the keel. Flowers in terminal clusters. Peduncles mostly 4 mm. long, glabrous, usually with stalked glands, bracteolate on the lower half. Sepals 2 mm. long, ovate, obtuse, widely membranous at the margin, obtusely keeled, often with stalked glands beneath. Petals 4·5—5 mm. long; blade elliptic, very obtuse, concave above on the upper half; claw $\frac{1}{2}$ — $\frac{2}{3}$ as long, linear, ciliate or glabrous. Stamens glabrous. Staminodes 3—3·5 mm. long, lanceolate, attenuate, gland-tipped, cuneate at the base, slightly concave above, pubescent above and beneath on the lower half. Disk closely embracing the ovary. Ovary minutely glandular, pilose on the apex, with 3 carpels bearing oblong pilose processes. Style glabrous.

PAARL DIV.: Paardeberg, east slopes, *Pillans* 7658; Joostenberg, north-west slopes, *Pillans* 9993.—STELLENBOSCH DIV.: sandy flats between the Tigerberg and Zandhoogte (base of Simonsberg), *Drège* 7092 (type, in Stockholm, cotype in Kew Herb.); Stellenbosch, *Duthie* 551; roadside near west end of Bottelary Hills, *Pillans* 9782, *Salter* 8459 A.

Flowering July—Sept. This may be a local form of *A. serpyllacea* confined to sandy flats in the divisions of Paarl and Stellenbosch.

68. **A. Cerefolium** Bartl. and Wendl. *Diosm.* 159 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 424 (1860) incl. vars. *glandulosa*, *glabrata*!; *Dümmer in Fed. Rep.* xi, 409 (1912). **Diosma Cerefolia** Vent. *Jard. Malm.* 93, t. 93 (1804). **D. Cerefolium** Ait. *Hort. Kew.* ed. 2, ii, 31 (1811); *DC. Prodr.* i, 715 (1824). **Bucco Cerefolium** Roem. and Schultes, *Syst. Veg.* v, 439 (1819). **Agathosma microphylla** G. F. W. Mey. ex Bartl. and Wendl. *Diosm.* 173!; *Sond. op. cit.* 423, incl. var. *stadensis*; *Dümmer op. cit.* 408. **A. Patens** Hort. ex Bartl. and Wendl. *Diosm.* 159. **A. stadensis**, **A. suaveolens** Eckl. and Zeyher, *Enum.* 113 (1835)!. **A. Bartlingiana** Eckl. and Zeyher, *Enum.* 114! partim, excl. syn. **A. obtusa** E. Mey. in *Drège*, *Zwei Doc.* 116, 162 (1844)! nomen, non Bartl. and Wendl. **A. obtusifolia** Presl, *Bot. Bemerk.* 31 (1844)! nomen. **A. Thunbergiana** Sond. var. *patula op. cit.* 425! **A. melaleucoides** Sond. *op. cit.* 431! **Hartogia Cerefolia**, **H. melaleucoides**, **H. microphylla** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets puberulous, sometimes very minutely so. Leaves 2—8 (mostly 3—5) mm. long, alternate, erect-spreading or sometimes spreading, usually somewhat recurved, linear, oblong, elliptic-oblong, lanceolate, oblong-lanceolate, elliptic or ovate, obtuse or acute, rounded at the base,

slightly concave, flat or sometimes slightly convex above, often gland-crenate at the margin, with scattered glands and a raised nerve beneath, sometimes slightly gibbous behind the apex, glabrous, puberulous beneath or on the margin, pilose on the margin and beneath on the nerve or tipped with long hairs, sometimes with stalked glands on the margin. Flowers in terminal clusters. Peduncles 2.5–6 mm. long, glabrous, puberulous or pubescent, sometimes with stalked glands, bearing bracteoles on the lower half. Sepals 1–1.25 mm. long, ovate, obtuse, rounded beneath, glabrous or sometimes tipped with a hair, or $\pm$ pilose-ciliate, very rarely with stalked glands. Petals 3–5 mm. long; blade elliptic or obovate-oblong, obtuse, glabrous, or sparsely pubescent above on the nerve, often with a gland behind the apex; claw half as long to equal in length, narrowly linear, $\pm$ ciliate. Stamens glabrous. Staminodes 1.75–3.25 mm. long, lanceolate or lanceolate-linear, acuminate, tipped with a gland, tapering towards the base, concave above, ciliate. Ovary with 3 carpels bearing rotund or widely obovate glabrous or pilose processes. Style glabrous.

South Africa: without precise locality; *Mund* (type of *A. melaleucoides* in Kew Herb., cotype in Stockholm), *Hesse* (cotype of *A. microphylla* in Stockholm).—BREDASDORP DIV.: Frikkie's Bay, *Compton* 18201; hills near Bredasdorp, *Bolus* 19163; Elim, *Guthrie* 2850; The Poort, *Compton* 9027, 19563; Hagelkraal River, *Leighton* 2525; near Agulhas, *Ecklon* and *Zeyher* 890 (cotype of *A. Thunbergiana* var. *patula* in S. Afr. Mus. Herb. and Stockholm).—CALEDON DIV.: Genadendal, *Drège* (cotype of *A. Cerefolium* var. *glabrata* in Kew Herb.), *Bauer* in Marloth Herb. 6616; top of Baviaans Kloof, *Burchell* 7885, *Stokoe* 2523; near Elgin, *Stokoe* 8294; Zonder Einde Peak, *Stokoe* 8950, 9366; Kleinrivier Mt., *Ecklon* and *Zeyher* 891.—GEORGE DIV.: near George, *Bolus* 13935, *Schlechter* 5773; 5 miles east of George, *Hutchinson* 1291; Montagu Pass, *Schlechter* 5797.—HUMANSDORP DIV.: flats at Zuur Anys, *Fourcade* 3026; Zoet Rug, Rob Hoek, *Fourcade* 1444.—KNYSNA DIV.: Commonage, *Keet* in Forest Dept. Herb. 2190; Biervlei Forest, *Forest Dept. Herb.* 2075; Woodville Forest, *Forest Dept. Herb.* 2076; Belvedere, *Duthie* 841; Clarkson, *Thode* A769; Barrington, *Galpin* 3868, 3871; near Knysna River, *Tyson* 2970, in Herb. Norm. Austr.-Afr. 997; near Keurbooms River, between Cloete's Kraal and Paarde Kraal, *Burchell* 5166; Plettenberg Bay, *Rogers* 26733; flats west of Storms River Mouth, *Fourcade* 512; flats at Oudebosch, *Fourcade* 872; Paardekop, *Fourcade* 3479.—MOSSEL BAY DIV.: between Nowsaramma River and Great Brak River, *Burchell* 6133; west side of drift at Great Brak River, *Burchell* 6155; Robinson's Pass, *Britten* 165.—PRINCE ALBERT DIV.: Seven Weeks Poort, *Compton* 4031.—RIVERSDALE DIV.: De Hoek, *Muir* 2954; Corenti

River Farm, Muir 5066; Garcia's Pass, Thorne in S. Afr. Mus. Herb. 41623.—SWELLENDAM DIV.: Tradouw Pass, Levyns 642; Puspasvlei, Ecklon and Zeyher 888 (cotype of *A. suaveolens* in S. Afr. Mus. Herb.).—UNIONDALE DIV.: Prince Alfred's Pass, Fourcade 5861.

Flowering July—Dec. The typical and apparently least common form seems to be confined to the northern part of the Caledon Division.

69. **A. bicornuta** R. A. Dyer in *Kew Bull.* (1934) 269!

Branchlets puberulous. Leaves 2—6 mm. long, alternate, ascending, slightly recurved above the middle, ovate or ovate-lanceolate, obtuse, rounded at the base, slightly concave above, slightly convex and with many scattered glands beneath, glabrous. Flowers in terminal clusters. Peduncles 2·5—3 mm. long, glabrous, or sparsely pubescent on the upper half, with linear bracteoles on the lower half. Sepals 0·75 mm. long, oblong or deltoid-oblong, obtuse, convex beneath, glabrous. Petals 3—3·5 mm. long; blade obovate, $\pm$ pubescent above on the nerve, with a gland behind the apex; claw about as long, cuneate-linear, ciliate. Stamens glabrous. Staminodes 2·5 mm. long, linear, obtuse, tapering to a filiform base, tipped with a gland, pilose above on the lower half. Ovary glabrous, with 2 or, sometimes, 3 carpels bearing oblong processes. Style glabrous.

ALBANY DIV.: Botha's Berg, MacOwan 560 (type, in Albany Mus., cotypes in Bolus Herb. and S. Afr. Mus. Herb.); "Hounslo" farm, Galpin 75.—SOMERSET EAST DIV.: mountain above the spring at Commadagga, Burchell 3324.

Flowering July—Sept. This is very closely related to *A. Cerefolium* B. and W. Further collecting may show that the two species are forms of one with a variable number of carpels.

70. **A. minuta** Schldl. in *Linnaea* vi, 206 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 420 (1860); *Dümmer in Fed. Rep.* xi, 407 (1912). **Hartogia minuta** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets minutely pubescent. Leaves 1·5—2 mm. long, alternate, spreading or reflexed, elliptic, ovate or sometimes oblong-lanceolate, obtuse, slightly concave or slightly convex above, with an inconspicuous nerve and minute impressed glands beneath, sometimes with 1—3 long hairs on the apex. Flowers in terminal clusters. Peduncles 2·5—4 mm. long, glabrous or sparsely and minutely puberulous. Sepals 0·5—0·75 mm. long, rotund, glabrous. Petals 2·5 mm. long; blade elliptic or obovate, sometimes with a few hairs above on the nerve; claw half as long, narrowly linear, glabrous. Stamens glabrous. Staminodes 1 mm. long, lanceolate, tapering towards the base, gland-tipped, pubescent above.

Ovary with 3 carpels bearing rotund sometimes pilose processes. Style glabrous.

BREDASDORP DIV.: near the Potberg, Karsrivier, *Ecklon and Zeyher* 886 (cotype in S. Afr. Mus. Herb.); The Poort, *Barker* 2482, *Acocks* 1782; Vogelvlei, *Leighton* in *Bolus* Herb. 21123, *Levyns* 4539; between Klooster and BovenDrift, "Nachwacht," *Smith* 2971, 4264; flats between Bredasdorp and Struys Bay, *Esterhuysen* 2968; coastbelt between Agulhas and Potberg, *Drège* 7121.—**SWELLENDAM DIV.:** Storms Vlei Kloof, *Lewis* in *Bolus* Herb. 23970.

Flowering June—Sept. A close affinity with *A. Cerefolium* is the reason for the two species often being confused. The size and shape of the sepals seem to be the best superficial characters for distinction.

71. *A. orbicularis* Bartl. and Wendl. Diosm. 175 (1824)!; Sond. in Harv. and Sond. Fl. Cap. i, 419 (1860); Dümmer in Fed. Rep. xi, 407 (1912). *Diosma orbicularis* Thunb. Prodr. i, 84 (1794)!; ej. Diss. Diosm. 17 (1797); Willd. Sp. Pl. i, 1140 (1798); Pers. Syn. Pl. i, 247 (1805); Ait. Hort. Kew. ed. 2, ii, 33 (1811); Roem. and Schultes, Syst. Veg. v, 460 (1819); Thunb. Fl. Cap. ed. Schultes 230 (1823); DC. Prodr. i, 714 (1824). *Hartogia orbicularis* O. Kze. Rev. Gen. i, 101 (1891).

Branchlets slender-wiry, puberulous. Leaves 1·5 mm. long, alternate, spreading or reflexed, widely ovate, rotund or cordate, subacute or obtuse, slightly convex or flat above, often somewhat revolute at the margin, gibbous behind the apex, glabrous, with a few small glands and a slightly raised nerve beneath. Flowers in terminal clusters. Peduncles about 3·5 mm. long, puberulous, with slender bracteoles on the lower half. Sepals 0·5—0·75 mm. long, rotund, obtuse, minutely ciliate, convex and with distinct glands beneath. Petals 2 mm. long, glabrous; blade elliptic, obtuse; claw half as long, linear. Stamens glabrous. Staminodes about 1·75 mm. long, oblong- or elliptic-lanceolate, with an apical gland, concave and pubescent above on the lower half. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

South Africa: without precise locality, *Thunberg* (cotypes in Lund and Stockholm).—**CALEDON DIV.:** slopes of hills above the Hot Baths, *Ecklon and Zeyher* 885, *Bolus* 9910, *Levyns* 4388, *Marloth* 4261, *Pillans* 6693, *Purcell* in S. Afr. Mus. Herb. 45934.

Flowering July—Nov. This species is known only in a small area with ironstone formation, which is almost certainly where *Thunberg* collected the type.

72. *A. Dielsiana* Schltr. ex Dümmer in Fed. Rep. xi, 333 (1912)! incl. var.

Branchlets puberulous, pubescent or pilose. Leaves 3—5 mm. long, alternate, erect-spreading, elliptic, oblong, elliptic- or ovate-oblong, ovate- or oblong-lanceolate, or ovate, obtuse or subacute, rounded at the base, $\pm$ convex above, slightly revolute and sometimes sparsely pilose at the margin, gibbous behind the apex, sometimes pilose beneath, with a scarcely raised nerve and inconspicuous glands. Flowers in terminal clusters. Peduncles about 3 mm. long, glabrous or sparsely pubescent, with bracteoles at or near the middle. Sepals 1.25—1.5 mm. long, ovate-lanceolate, obtuse, ciliate, glabrous, or pubescent beneath, sometimes pilose at the apex, with a keel decurrent on the tube of the calyx. Petals 3—4 mm. long; blade narrowly obovate, ciliate on the lower half; claw about $\frac{1}{4}$ as long, linear, glabrous. Stamens glabrous. Staminodes 2.5—3 mm. long, lanceolate, attenuate, gland-tipped, with a narrow tapering basal part, pubescent at the middle. Ovary tubercled on the upper half, sometimes pilose at the middle, with 3 carpels bearing elliptic-oblong processes. Style glabrous.

South Africa: without precise locality, *Thom* 516 (type of var. in Kew Herb.).—BREDASDORP DIV.: near Mierkraal, *Schlechter* 10522; Agulhas, *Schlechter* 10558 (type in Kew Herb., cotypes in Albany Mus. and National Herb.); Cape Infanta, on limestone, *Walgate* 873; Kathoek, limestone hills, *Pillans* 9307.—GEORGE DIV.: near Hartenbosch River, on sand dunes, *Young* in Bolus Herb. 5511; Wilderness, on sand dunes, *Compton* 15827, *Levy* 4295, 5015.—MOSSEL BAY DIV.: Little Brak River, *Lewis* in Bolus Herb. 23954; Mossel Bay, *Rogers* 4174.—RIVERSDALE DIV.: Still Bay, *Laver* in Bolus Herb. 23955, *Muir* 2449, 5173; Melkhoutfontein, *Galpin* 3870, 3872; without precise locality, *Marloth* 3554.

Flowering April—Oct. *Pillans* 9307 is a form with unusually much divided branches and with unusually small leaves. These unusual characters may have developed in consequence of the arid conditions of the locality.

73. A. Muirii *Phillips in Ann. S. Afr. Mus.* ix, 117 (1913)!

Branchlets puberulous. Leaves 3—6 mm. long, alternate, spreading or slightly reflexed, oblong-lanceolate, ovate, rotund or orbicular, obtuse, rounded or subcordate at the base, slightly convex, flat or slightly concave above, often thickened and sometimes minutely tubercled and pilose-ciliate at the margin, elsewhere glabrous, with a slightly raised nerve and many scattered glands beneath, slightly gibbous behind the apex. Flowers in terminal clusters. Peduncles 3—4 mm. long, papillate, with bracteoles on the lower half. Sepals 1—1.25 mm. long, oblong, obtuse, concave above, ciliate, with many glands beneath, with a keel extending

down to the apex of the peduncle. Petals 3·5—4·5 mm. long; blade elliptic, elliptic-oblong or elliptic-ovate, very obtuse, sometimes pilose above on the nerve; claw $\frac{1}{3}$ as long, narrowly linear, ciliate. Stamens with filaments $\pm$ ciliate on the lower half. Staminodes 2·5—3 mm. long, linear, attenuate at both ends, tipped with a gland, ciliate, pubescent above on the middle. Ovary glabrous, glandular on the apex, with 3 carpels bearing rotund processes. Style glabrous.

RIVERSDALE DIV.: Still Bay, *Muir* 635, in S. Afr. Mus. Herb. 4997 (type); Buffelshoek, near the sea, *Muir* 1107; Plattebosch, *Muir* in Galpin Herb. 5174; Yzervarkfontein, near the sea, *Muir* 1092.

Flowering May—July.

74. *A. riversdalensis* Dümmer in *Ann. Bolus Herb.* iii, 57 (1920)!

A low shrub usually 30—35 cm. high, with puberulous branchlets. Leaves 2·5—3·5 mm. long, alternate, erect-spreading, ovate, obtuse, rounded or subcordate at the base, convex or flat above, glabrous, or sometimes pilose on the margin, gibbous behind the apex, with a few scattered glands and a slightly raised nerve beneath. Flowers in terminal clusters. Peduncles 3 mm. long, puberulous, with linear ciliolate bracteoles at the middle. Sepals 1·25 mm. long, widely oblong, very obtuse, slightly cucullate above, ciliate, rounded and with a few raised glands beneath. Petals 4 mm. long; blade elliptic- or obovate-oblong, very obtuse, ciliate on the lower half; claw $\frac{1}{4}$ as long, linear, glabrous. Stamens glabrous. Staminodes 2·5 mm. long, narrowly linear near the base, thence lanceolate upwards, terminating in a large gland, densely pubescent above and beneath at the middle. Ovary glabrous, with 3 carpels bearing obovate-oblong processes. Style glabrous.

BREDASDORP DIV.: Marcus Bay, Wagenhuis Kraal, *Fry* in Galpin Herb. 4953.—RIVERSDALE DIV.: at the Gouritz River, Melkhoutfontein, *Muir* 1111 (type, in Bolus Herb., cotype in S. Afr. National Herb.); Zoutpan, *Muir* 1103; near Albertinia, Oude Tuin and on dunes not far from the sea, *Muir* 928; Albertinia Commonage, *Muir* 2009.

Flowering April—Sept. This species is obviously very closely related to the older species *A. Dielsiana* and *A. Muirii*. The three species may be forms of one.

75. *A. pallens* sp. nov.; ramulis glabris; foliis alternatis subimbricatis linearibus vel lanceolato-linearibus subacutis vel obtusis glabris vel apice pubescentibus, supra concavis, subtus convexis; floribus terminalibus vel inferioribus axillaribus; pedunculis glabris bracteolatis; sepalis oblongo-ovatis vel ovatis obtusis saepe sparse ciliatis, supra sparse pubescentibus; petalis obovatis ovatis vel rotundis, infra medium lineari-

bus pubescentibus; staminibus glabris; staminodis oblanceolato-linearibus ciliatis, apice glandula notatis; ovario 3-loculari glabro cornubus rotundatis; stylo glabro.

Branchlets glabrous. Leaves 3·5—6 mm. long, alternate, ascending or erect, subimbricate, linear or lanceolate-linear, subacute or obtuse, rounded at the base, concave above, rounded and with scattered glands beneath, glabrous or sometimes with a few apical hairs, grey-green. Flowers in terminal clusters, or the lower axillary. Peduncles 2·5—4 mm. long, glabrous, with very slender ciliate bracteoles about the middle. Sepals 0·75—1·5 mm. long, ovate or oblong-ovate, obtuse, concave and sparsely pubescent above, rounded beneath, often sparsely ciliate, with a ridge at the base extending to the peduncle. Petals 3—4·5 mm. long; blade obovate, ovate or rotund, very obtuse, with a gland behind the apex; claw $\frac{1}{2}$ — $\frac{2}{3}$ as long, linear, pubescent above. Stamens glabrous. Staminodes 2·25 mm. long, oblanceolate-linear, tipped with a large gland, ciliate, tapering to a slender glabrous base. Disk crenulate. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

RIVERSDALE Div.: Albertinia, *Stokoe* 8294 (type, in Bolus Herb.), Muir 1253, *Walgate* in Bolus Herb. 23971.

Flowering Nov.—Febr. The affinity is with *A. Dielsiana* from which it is distinguished by very differently shaped leaves.

76. *A. latipetala* Sond. in *Harv. and Sond. Fl. Cap.* i, 422 (1860)! incl. var. *Hartogia latipetala* O. Kze. *Rev. Gen.* i, 101 (1891). *A. florifera* Dümmer in *Fed. Rep.* xi, 409 (1912)!

Branchlets puberulous. Leaves usually 2·5—3 mm. long, alternate, reflexed, oblong- or ovate-lanceolate, or ovate, obtuse, rounded at the base, $\pm$ concave or almost flat above, glabrous or sometimes sparsely ciliate, slightly thickened at the margin, nerve-keeled, with immersed glands on the keel and margin. Flowers in terminal clusters. Peduncles 3—4 mm. long, glabrous or $\pm$ puberulous, sometimes with minute glandular hairs, with slender bracteoles on the lower half. Sepals 1·25—2 mm. long, ovate or ovate-lanceolate, subacute, rounded beneath, narrowly membranous and often ciliolate at the margin, sometimes setose at the apex and on the nerve beneath. Petals 3·5—4 mm. long, glabrous; blade elliptic or obovate-elliptic, sometimes subcordate at the base, very obtuse; claw $\frac{1}{2}$ — $\frac{3}{4}$ as long, linear. Stamens with filaments ciliolate on the lower half. Staminodes 2·5 mm. long, lanceolate, obtuse, cuneate at the base, concave and pubescent above, with a gland behind the apex. Ovary with 3 carpels bearing widely oblong or subclavate sometimes setose processes. Style glabrous.

South Africa: without precise locality, *Niven* (type of *A. latipetala* in

Stockholm).—MALMESBURY DIV.: hills between Mamre and Darling, *Bolus* 12639, *Leighton* in *Bolus* Herb. 13933, *Compton* 9432, 13730, 14934, *Esterhuysen* 3809, 12973, *Pillans* 6898; Malmesbury, *Compton* 7807, 19939, *Gillett* 3616; near Moorreesberg, *Bolus* 9955 (cotype of *A. florifera* in *Bolus* Herb.); between Mamre and Malmesbury, *Walgate* in *Bolus* Herb. 13934.—PAARL DIV.: Joostenberg, north slopes, *Pillans* 8104.—PIKETBERG DIV.: without precise locality, *Edwards* 263; Saron, *Leipoldt* in *Bolus* Herb. 18618.

Flowering Aug.—Oct. There are specimens of this species, collected by Schlechter, in the Albany Mus. and *Bolus* Herb., which were labelled by him "8393, Steenbras River, 1000', 13, x, '94." The locality is very doubtful.

77. ***A. florida*** *Sond. in Harv. and Sond. Fl. Cap.* i, 424 (1860)! ***A. mollis*** *Eckl. and Zeyher ex C. Muell. in Walp. Ann.* vii, 514 (1869)! ***Hartogia florida*** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets sparsely pubescent. Leaves 4—5 mm. long, alternate, crowded, spreading, lanceolate, subacute, rounded at the base, slightly convex above, denticulate and at first pilose at the scarcely recurved margin, with a slightly raised and at first pilose nerve beneath. Flowers in terminal clusters. Peduncles 3.5 mm. long, glabrous, with bracteoles on the lower half. Sepals 1 mm. long, ovate-lanceolate, obtuse, obtusely keeled, glabrous. Petals 4.5—4.75 mm. long; blade oblong-ob lanceolate, very obtuse, sparsely pubescent above, ciliate on the lower half; claw about 1 mm. long, linear. Stamens glabrous. Staminalodes 4 mm. long, lanceolate-linear, obtuse, ciliate on the lower half, linear and glabrous at the base. Ovary with 3 carpels bearing linear-oblong processes pilose at the apex. Style glabrous.

SWELLENDAM DIV.: hills near Riet Kuil, *Mund* in *Ecklon and Zeyher* Herb. 879.

Flowering Sept. The affinity is with *A. ciliaris* Druce, of which it may be a form with the leaves convex above, and with differently shaped petals.

78. ***A. venusta*** comb. nov. ***Barosma venusta*** *Eckl. and Zeyher, Enum.* 102 (1835)!; *Bartl. in Linnaea* xvii, 362 (1843); *Sond. in Harv. and Sond. Fl. Cap.* i, 395 (1860); *Engl. in Engl. and Prantl, Pflanzenfam.* iii, §4, p. 148 (1896).

Branchlets warted, puberulous. Leaves mostly 6—8 mm. long, alternate, erect-spreading, obovate, widely obovate, rotund or sometimes ovate, elliptic or ovate-lanceolate, very obtuse, rounded or widely cuneate at the base, flat or slightly concave above, glabrous, or puberulous on the petiole, obtusely serrate and thickened at the margin, with a raised nerve and scattered glands beneath. Flowers 2—5 together clustered at

the ends of very short bracteolate stipes in the axils of the upper leaves. Peduncles 4—5 mm. long, minutely puberulous, with a few prominent glands, with linear bracteoles on the lower half. Sepals 0·75 mm. long, deltoid-ovate, obtuse, rounded and minutely puberulous beneath. Petals 3·5 mm. long, oblanceolate or oblong, tapering to an obtuse base, concave above, incurved at the apex, glabrous, with a large gland behind the apex and several below. Stamens glabrous. Staminodes 2·75 mm. long, linear, dorsally compressed, glabrous, tipped with a large gland. Disk inconspicuous, crenulate. Ovary distinctly raised on a stout stipe, glabrous, with 3 or sometimes 4 carpels bearing conical-oblong glandular processes. Style glabrous, much recurved.

ALBANY DIV.: Stone's Hill, *Schönland* 353; Coldspring, *Britten* 3431, 5434, *Daly and Sole* 263, *Story* 3161; Dassie Krantz, *Dyer* 148; between Howieson's Poort and Brookhuizen's Poort, *MacOwan* 1008; hills at Brookhuizen's Poort, *Galpin* 79, *MacOwan* 442; Manley Flats, *Leighton* 2626.—GRAAFF-REINET DIV.: Sneeuwberg, *Bolus* 2576.—HUMANSBURG DIV.: Rietvlei, *Esterhuysen* 6654b; Blueberg Loerie Plantation, *Dix* 12; Kruisfontein Mt., *Galpin* 3867.—MURRAYSBURG DIV.: Koudeveld, *Tyson* 480.—UITENHAGE DIV.: Van Staaden's Mts., *Bolus* 1602, *Paterson* 895, *Ecklon and Zeyher* 807 (cotype in S. Afr. Mus. Herb.), *Zeyher* 2156; Witte Klip, *Holland* 3582, *Long* 1402; Zuurberg, *Long* 1084, *Paterson* 56; Elands River, Melkhoutboom, *Long* 1389.—UNIONDALE DIV.: Joubertina Mts., *Esterhuysen* 7062, 7063, 10634; Die Hoek, *Esterhuysen* 16355; Kouga Peak, *Esterhuysen* 16274.

Flowering July—Jan. The upper flowers, mostly bisexual, appear to develop first. The lower flowers are mostly unisexual.

79. **A. thymifolia** *Schldl. in Linnaea* vi, 205 (1830); *Sond. in Harv. and Sond. Fl. Cap.* i, 420 (1860); *Dümmer in Fed. Rep.* xi, 407 (1912). **Hartogia thymifolia** *O. Kze. Rev. Gen.* i, 102, (1891).

A low shrub. Branchlets minutely puberulous on strips alternating with the bases of the leaves. Leaves 3·5—4 mm. long, alternate, erect-spreading or spreading, obovate, obovate-oblong or rotund, rounded at the base and apex, dorsally compressed, slightly convex above, slightly recurved at the margin, glabrous, with impressed glands and a slightly raised nerve beneath, ± gibbous behind the apex. Flowers in terminal clusters. Peduncles 4—4·5 mm. long, sparsely puberulous, with small bracteoles on the lower half. Sepals 1·5 mm. long, oblong-lanceolate, obtuse, glabrous, convex and with raised glands beneath. Petals 4 mm. long, glabrous; blade obovate-oblong, very obtuse; claw half as long, narrowly linear. Stamens glabrous. Staminodes 3—3·5 mm. long, oblanceolate-linear in the upper half, acute, narrowly linear and sparsely

ciliate in the lower half, tipped with a minute gland. Ovary minutely tubercled, with 3 carpels bearing rotund slightly retuse processes. Style glabrous.

MALMESBURY DIV.: Saldanha Bay, Baron von *Ludwig* (type); on dunes at Saldanha Bay, *Ecklon and Zeyher* 883; between Mamre and Saldanha Bay, *Drège* 7119; Geelbek, *Barker* 4626, *Compton* 19890.

Flowering Aug.—Oct. This species resembles *A. lanceolata* in several important characters. The two species are closely related and probably have a common ancestry.

80. *A. ciliata* *Link*, *Enum. Hort. Berol.* i, 238 (1821—22); *Bartl. and Wendl. Diosm.* 155 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 425 (1860); *Thonner, Blütenpfl. Afr.* t. 74 (1908); *Dümmer in Fed. Rep.* xi, 411 (1912); *Thonner, Fl. Pl. Afr.* t. 73 (1915); *Marloth, Fl. S. Afr.* ii, t. 36, f. c (1925); *Walgate in Fl. Cape Peninsula* 540 (1950). [*Thymelaea* etc. *Seba, Thes.* ii, 19, t. 17, f. 5 (1735)]. *Diosma ciliata* *Linn. Sp. Pl.* ed. 1, i, 198 (1753) incl. syn.; ed. 2, i, 287 (1762) incl. syn.; *Berg. Pl. Cap.* 66 (1767); *Lam. Encycl.* ii, 287 (1786); *Linn. Syst. Nat.* ed. 13, ii, 409 (1796) incl. syn.; *Murr. Syst. Veg.* 250 (1797) excl. syn.; *Ait. Hort. Kew.* ed. 2, ii, 30 (1811); *Ker-Gawl. in Edwards' Bot. Reg.* t. 366 (1819); *Roem. and Schultes, Syst. Veg.* v, 459 (1819); *DC. Prodr.* i, 715 (1824); *Spreng. Syst. Veg.* i, 786 (1825). [*Spiraea africanum* etc. *Pluk. Amalth.* iv, 197, t. 411, f. 3 (1769)]. *Hartogia ciliata* *O. Kze. Rev. Gen.* i, 100 (1891).

Branchlets pilose. Leaves 0·5—1·2 cm. long, alternate, erect-spreading, lanceolate, ovate-lanceolate or ovate, acute, rounded at the base, slightly concave, convex or flat and smooth above, usually somewhat revolute and crenulate with gland-based rather rigid cilia or glabrous, with a prominent nerve and scattered glands beneath, sometimes with a few long hairs on the nerve, often swollen behind the apex. Flowers in terminal clusters. Peduncles 3—6 mm. long, scabrid, glabrous, or with occasional hairs, with bracteoles on the lower half. Sepals 1·5—2·5 mm. long, ovate-lanceolate, obtuse, obtusely keeled, ciliate or glabrous. Petals 4—5 mm. long; blade oblong-elliptic; claw 1—1½ times as long, narrowly linear, sparsely ciliate near the base or glabrous. Stamens glabrous. Staminodes 3—4·5 mm. long, linear-oblong in the upper half, obtuse, concave above, narrowly linear and ciliate in the lower half, with a conspicuous gland behind the apex. Ovary glabrous, or pilose on the apex, with 2 carpels bearing oblong sparsely pilose or glabrous processes.

CAPE DIV.: Table Mt., *Burchell* 8400, 8423, *Ecklon and Zeyher* 878, *Bolus* 4580, *Garside* 192, *Esterhuysen* 7997, *L. Kensit* in Natal Herb. 11731, *Pillans* 8980, 8982, *Thode* A88, *Wasserfall* 130, *Rogers* 2457; above Kirstenbosch *Acocks* 1217, *Compton* 7517, 11188, *Esterhuysen* 210, *Hum-*

bert 9669; *Penfold* 211; Orange Kloof, *Gamble* 2226, 22097, *Pillans* 8983. Slangolie Gorge, *Marloth* 8463; Devil's Peak, *Bolus* 3940, in Herb. Norm; Austr.-Afr. 314, *W. Dod* 42, *Marloth* 137; Lion's Head *Marloth* 131, *Pillans* 8993, *Tyson* 2379.—WORCESTER DIV.: Du Toit's Kloof, *Drège* 7086; Bain's Kloof, *Esterhuysen* 1981, *Stokoe* 8084, *Schlechter* 9148; Bailey's Peak, *Esterhuysen* 8526, *Stokoe* 8270; Pic Blanc, *Esterhuysen* 8514.

Flowering April—Sept.

81. ***A. ciliaris*** *Druce* in *Rep. Bot. Exchange Club Brit. Isles* 1916, p. 603 (1917); *Walgate* in *Fl. Cape Peninsula* 541 (1950). ***Hartogia ciliaris*** *Linn. Syst. Nat.* ed. 12, ii, 625 (1767). ***Diosma ciliata*** *Lam. Encycl. Meth.* ii, 287 (1786) excl. syn. ***D. rugosa*** *Thunb. Prodr. Pl. Cap.* 43 (1794); *ej. Diss. Diosm.* 412 (1797); *Willd. Sp. Pl.* i, 1139 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Roem. and Schultes, Syst. Veg.* v, 459 (1819); *Thunb. Fl. Cap. ed. Schultes* 226 (1823); *Spreng. Syst. Veg.* i, 787 (1825). ***Bucco obtusa*** *Wendl. Collect.* i, 45 (1805); *Roem. and Schultes op. cit.* 438, excl. syn. *Thunb., Berg. and Pluk.* ***Agathosma pubescens*** *Willd. Enum. Hort. Berol.* i, 259 (1809); *Link, Enum. Hort. Berol.* i, 238 (1821). ***Diosma thymifolia*** *Willd. ex Roem. and Schultes, Syst. Veg.* v, 462 (1819). ***D. lanceolata*** *Ker-Gawl. in Edwards', Bot. Reg.* t. 476 (1820) non *Murray*, excl. syn. mult.; *DC. Prodr.* i, 715 (1824). ***Agathosma rugosa*** *Link, Enum. Hort. Berol.* i, 238 (1821); *Sond. in Harv. and Sond. Fl. Cap.* i, 421 (1860); *Dümmer in Fed. Rep.* xi, 408 (1912) incl. var. ***A. hybrida*** *Barthl. and Wendl. Diosm.* 167 (1824)! ***A. mollis*** *Barthl. and Wendl. Diosm.* 168. ***A. obtusa*** *Barthl. and Wendl. Diosm.* 169, t, B. f. vii, A—H, excl. var. B. partim. ***A. Bartlingiana*** *Eckl. and Zeyher, Enum.* 114 (1835)! partim.

Branchlets verruculose, pubescent or villous. Leaves 4—8 mm. long, alternate, erect-spreading or spreading, lanceolate, oblong- or ovate-lanceolate, obtuse or subacute, rounded or subcordate at the base, slightly concave or furrowed and glabrous or pilose above, usually convex above near the slightly thickened and slightly revolute margin, with a prominent and often pilose nerve beneath terminating in a swelling behind the apex, often pilose-ciliate. Flowers in terminal clusters or the lower (in a cluster) in the axils of reduced leaves. Peduncles 3—7 mm. long, glabrous, $\pm$ pubescent or with a mixture of hairs and stalked glands, with bracteoles on the lower half. Sepals 1.5—2 mm. long, ovate-lanceolate or ovate, obtuse or subacute, $\pm$ membranous at the margin, glabrous or $\pm$ ciliate, obtusely keeled on the upper half. Petals 4.5—5.5 mm. long; blade obovate or oblong-obovate, very obtuse, subcucullate at the apex, sometimes sparsely pilose above at the base; claw $\frac{2}{3}$ or as long, narrowly linear, ciliate. Stamens glabrous. Staminodes 3.5—4.5

mm. long, lanceolate, oblong- or linear-lanceolate, or oblong in the upper half, terminating in a round gland, tapering from the middle to the base, $\pm$ pubescent above at the middle, ciliate except near the base and apex. Ovary glabrous, puberulous at the apex or sometimes with stalked glands, with 3 carpels bearing oblong or obovate-oblong pilose or glabrous processes. Style glabrous.

BREDASDORP DIV.: near Bredasdorp, *Bolus* 8474; Baardscheerdebosch, *Barker* 2473; Elim, *Guthrie* 3852; The Poort, *Compton* 14794.—CALEDON DIV.: Rooi Els, *Esterhuysen* 14126, *Compton* 17515, *Leighton* 1460, 1461, *Levy's* 9286; Palmiet River Mouth, *Levy's* 7760, *Compton* 3449, *Stokoe* 8006, *Barker* 1150; Hermanus, *Bolus* 9688, *Compton* 14236, 17965; Hanglip, *Compton* 13585; Shaw's Mt., *Gillett* 4453, 4454, 4455; Viljoen's Pass, *Salter* 4963; Klein River Mts., *Walgate* in *Bolus* Herb. 23940.—CAPE DIV.: without precise locality, *Harvey* 480, *Sieber* 59, *Thorn* 170, *Drège* 7126, *Ecklon* 290, *Thode* A87; Table Mt., north slopes, *MacOwan* in Herb. Norm. Austr.-Afr. 1820, *Phillips* 3828, *Marloth* 437, *Bolus* 4791, *Kies* 31, *Barker* 4083, *Rogers* 1099; Table Mt. and Devil's Peak, *Ecklon* and *Zeyher* 882; Devil's Peak, *Burchell* 8502, *Pillans* 8981; Lion's Head, *Compton* 12549, *W. Dod* 1171, *Rogers* 15580, *Tyson* 3046, *Walgate* 20; Vlakkeberg, *Walgate* 66; Clifton, *Barker* 1961; Little Lion's Head, *Walgate* 22; Karbonkelberg, *Compton* 13270; Llandudno, *Hutchinson* 547; Scarborough, *Walgate* 21; Skoorsteenkop, *Walgate* 29; Slangkop, *Walgate* 28; Muizenberg, *Bolus* 4633; hills at Fish Hoek, *Bolus* 7971; Simonstown hills, *Bolus* 4677, *W. Dod* 2769, *Compton* 17998; Zwartkop Range, *Pillans* 8987, *Walgate* 31; Vasco da Gama Peak, *Walgate* 18; Schuster's Bay, *Kies* 158; Olifants Bosch, *Compton* 15837, 17489; Bonteberg, *Compton* 8888, 9370; Buffels Bay, *Compton* 13350; Cape Point, *Compton* 6569.—STELLENBOSCH DIV.: Gordon's Bay, *Bolus* 23938; Sir Lowry's Pass, *Bolus* 4117, *Schlechter* 7810; mouth of Steenbras River, *Compton* 8027.

Flowering May—Dec. The present determination of this species is based on Linne's brief description of his *Hartogia ciliaris*, and it is supported by determinations made by Bartling, Wendland and Sonder.

82. *A. lanceolata* Engl. in Engl. and Prantl, *Pflanzfam.* iii, §4, p. 151 (1896); *Dümmèr* in *Fed. Rep.* xi, 407 (1912); *Walgate* in *Fl. Cape Peninsula* 541 (1950). *Hartogia lanceolata* Linn. *Syst. Nat.* ed. 12, p. 625 (1767). *Diosma lanceolata* Linn. *Mant. Alt.* 343 (1771); *ej. Syst. Nat.* ed. 13, ii, part 1, p. 409 (1796); *Murr. Syst. Veg.* 250 (1797). *Agathosma Wrightii* *MacOwan* in *Journ. Linn. Soc.* xxv, 386 (1890).

A low much branched shrub, often with spreading branches. Branchlets puberulous or shortly pubescent. Leaves mostly 4—6 mm. long,

alternate, spreading, often slightly recurved, oblong-elliptic, elliptic, ovate or subrotund, very obtuse, rounded at the base, slightly convex or flat above, dorsally compressed, ecarinate, with a few scattered glands beneath, thickened and with a row of glands at the margin, sometimes with long hairs arising on the marginal glands. Flowers in terminal clusters. Peduncles 5—6 mm. long, glabrous, with oblong-lanceolate obtuse bracteoles near the base. Sepals 1.5 mm. long, ovate, obtuse, membranous at the margin, glabrous, concave above, obtusely keeled, with scattered glands beneath. Petals 4—4.5 mm. long, glabrous or sparsely ciliate near the base; blade elliptic or ovate- or obovate-elliptic, very obtuse, subcucullate at the apex; claw half as long, linear-oblong. Stamens glabrous. Stamínodes 4 mm. long, oblanceolate-oblong in the upper half, obtuse, linear and pilose-ciliate in the lower half, with a gland behind the apex. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

CAPE DIV.: summits of mountains near Simonstown, *MacOwan* 2550 (cotypes of *A. Wrightii* in Albany Mus., Bolus Herb. and S. Afr. Mus. Herb.), in Herb. Norm. Austr.-Afr. 555; top of Red Hill, *Compton* 17998, *Pillans* 2515, *Schlechter* 1088, *Walgate* 17; near Red Hill, Groot Kop, *Compton* 13256, *Walgate* 19; Zwartkop Range, *Pillans* 8987; near stream above Hester's Dam, *Galpin* 12771; Brightwater, *Compton* 14555; Platboom, *Compton* 13318; Vaco da Gama Peak, *Walgate* 18.

Flowering April—Oct. Sonder united this species with *A. rugosa* Link. Dümmer kept it distinct and stated that "Linne's type specimen is entirely in agreement with this plant." The present determination rests mainly on Dümmer's definite statement. The close similarity to forms of *A. rugosa* suggest a common origin and that the two species may be forms of one species.

83. *A. trichocarpa* Holmes in *Scottish Bot. Review* i, 162 (1912)!; Dümmer in *Fed. Rep.* xi, 420 (1912); Holmes in *Trans. and Proceedings Bot. Soc. Edinb.* xxvi, 77, t. 2 (1917).

A low shrub with pubescent or pilose branchlets. Leaves 4—5 mm. long, alternate, spreading or reflexed, slightly recurved, lanceolate, acute or subacute, rounded at the base, slightly concave above, pilose-ciliate, often with marginal stalked glands, with a prominent often pilose nerve beneath, with glands confined to the nerve and margin. Flowers in terminal clusters. Peduncles 5—6 mm. long, with stalked glands, bracteolate on the lower half. Sepals 1.5 mm. long, widely ovate, subacute, ciliolate, rounded and with stalked glands beneath. Petals 4 mm. long, glabrous; blade elliptic-oblong, very obtuse; claw scarcely half as long, linear. Stamens glabrous. Stamínodes 2.75—3 mm. long, lanceolate in the

upper half, tapering from the middle to the base, ciliate except near the base and apex, gland-tipped. Ovary with many stalked glands, with 3 carpels bearing oblong processes pilose at the apex. Style glabrous.

PIKETBERG DIV.: plateau on the Piketberg, *Schlechter* 5240 (cotypes in Albany Mus., Bolus Herb., Kew Herb. and S. Afr. Mus. Herb.).—

TULBAGH DIV.: Neuwe Kloof, *Burchell* 989 partly.

Flowering June—Sept.

84. **A. abrupta** sp. nov.; ramulis pubescentibus; foliis alternatis ovato-lanceolatis subacutis, basin rotundatis vel subcordatis ciliatis, supra paulum concavis; floribus terminalibus; pedunculis glabris bracteolatis; sepalis oblongo-ovatis acutis ciliatis, margine membranaceo; petalis ovatis obtusis unguiculatis, basin ciliolatis; staminibus glabris; staminodis deltoideo-lanceolatis obtusis ciliatis, infra medium anguste linearibus, subtus pubescentibus, apice glandula notatis; ovario 2-loculari, apice pubescente, cornubus oblongis; stylo glabro.

A much branched shrublet. Branchlets pubescent, rough with small glands. Leaves 3—4 mm. long, alternate, spreading and slightly recurved, ovate-lanceolate, subacute, rounded or subcordate at the base, concave above or slightly concave up the middle, pilose-ciliate, with a row of glands at the margin and a few scattered beneath, with a scarcely raised nerve. Flowers in terminal clusters. Peduncles 3—4 mm. long, glabrous, with linear ciliate bracteoles on the lower half. Sepals 1 mm. long, oblong-ovate, obtuse, membranous at the margin, densely ciliate, obtusely keeled. Petals 3 mm. long; blade obovate, very obtuse; claw half as long, narrowly cuneate, ciliolate. Stamens glabrous. Staminodes 1.75 mm. long, deltoid-lanceolate and slightly concave in the upper half, obtuse; abruptly becoming very narrowly linear in the lower half, pubescent beneath and ciliate at the widest part, ciliolate immediately below the middle, with a distinctly terminal gland. Ovary pubescent on the upper half, with 2 carpels bearing oblong glabrous processes. Style glabrous.

CALEDON DIV.: near Gansbaai, Baviaansfontein, *Stokoe* 8282 (in Bolus Herb.).

Flowering Aug., Sept. The affinity is with *A. ciliaris* Druce from which it differs chiefly in the shape of the staminodes and the lesser number of carpels. The name is in allusion to the shape of the staminodes.

85. **A. marifolia** Eckl. and Zeyher, *Enum.* 113 (1835)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 422 (1860) incl. var.! **A. foliosa** *Sond. op. cit.* 421!; *Dümmer in Fed. Rep.* xi, 407 (1912) incl. var.! **Hartogia foliosa**, **H. marifolia** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets puberulous. Leaves 3·5—8 mm. long, alternate, much reflexed, ovate- or oblong-lanceolate, lanceolate-linear or linear-oblong, acute, rounded at the base, slightly convex, flat or slightly concave above, usually persistently hispidulous above and beneath, sometimes ciliate or with stalked glands, with a prominent nerve and scattered glands beneath. Flowers in terminal clusters. Peduncles 4 mm. long, shortly pubescent, bracteolate on the lower half. Sepals 1—1·5 mm. long, ovate, subacute or obtuse, rounded and pubescent beneath, sometimes shortly pubescent above or with 1 or 2 long apical hairs, rarely with stalked glands. Petals 4—4·5 mm. long, glabrous; blade elliptic- or obovate-oblong, obtuse; claw as long or almost so, narrowly linear. Stamens glabrous. Staminodes 2—3 mm. long, lanceolate or oblong-lanceolate, acuminate, gland-tipped, $\pm$ pubescent above and sometimes beneath. Ovary glabrous, or pilose on the upper half, with 3 carpels bearing oblong hispid or pilose processes. Style glabrous.

CERES DIV.: Bokkeveld, *Marloth* 7791.—CLANWILLIAM DIV.: Heeren Logement, *Esterhuysen* 5565, *Compton* 10955; Klipfontein, *Ecklon and Zeyher* 887 (cotypes of *A. marifolia* in S. Afr. Mus. Herb. and Stockholm); between Olifants River and Knakisberg, *Zeyher* 296, *Drège* 7088 (cotypes of var. *lanceolata* in Kew Herb. and Stockholm); between Bergvlei and Langvlei, *Zeyher* 297 (type of *A. foliosa* in Stockholm, cotype in S. Afr. Mus. Herb.); Zeekoe Vlei, *Schlechter* 8510 (cotypes of var. *Schlechteri* in Bolus Herb. and National Herb.).—PIKETBERG DIV.: Piketberg, *Schlechter* 7903; Mouton's Vlei, *Edwards* 195; near Sauer, Bosch Kloof, *Penfold* 220.

Flowering June—Nov.

86. *A. elata* *Sond. in Harv. and Sond. Fl. Cap.* i, 438 (1860)! incl. var. *Hartogia elata* *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets glabrous, minutely and sparsely puberulous or pubescent. Leaves 3—4 mm. long, alternate, ascending, oblanceolate-oblong or oblanceolate, rarely oblong, obtuse, cuneate at the base, concave above, rounded and with inconspicuous glands beneath, glabrous, sometimes with small stalked glands on the margin. Flowers in terminal clusters, or the lower often axillary. Peduncles 6—7 mm. long, glabrous, puberulous or pubescent, with slender bracteoles on the lower half. Sepals 1—1·25 mm. long, ovate, obtuse, concave above, obtusely keeled beneath, glabrous or ciliate. Petals 3·5 mm. long, glabrous; blade obovate-elliptic, very obtuse, slightly concave above at the apex; claw $\frac{1}{2}$ as long, linear. Stamens glabrous. Staminodes 2·5 mm. long, linear-lanceolate, obtuse, with a gland behind the apex, tapering to a short oblong base, ciliate on the middle part. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

South Africa: without precise locality, *Niven* (type of var. in Stockholm).—VAN RHYNSDORP DIV.: Giftberg, *Drège* 7115 (type in Stockholm, cotype in Kew Herb.).

Flowering Sept.—Nov.

87. **A. Foleyana** *Dümmer in Ann. Bol. Herb.* iii, 46 (1920)!

Branchlets puberulous. Leaves 3—5 mm. long, alternate, erect-spreading, elliptic, obovate- or ovate-elliptic, obtuse, rounded at the base, deeply concave above, pectinate-ciliate, rounded and with many glands scattered beneath, with a stout ciliate petiole. Flowers in terminal clusters. Peduncles 1.5 mm. long, stout, puberulous, with spatulate ciliate bracteoles at the middle. Sepals 3.5 mm. long, spatulate-oblong, very obtuse and incurved at the apex, submembranous, sparsely pubescent above, conspicuously ciliate, slightly convex beneath. Petals 6 mm. long; blade obovate, very obtuse; claw almost as long, linear, minutely ciliate. Stamens with sparsely pubescent filaments. Staminodes about 4.5 mm. long, long-adnate to the claws of the petals, linear-oblongate, obtuse, gland-tipped, tapering and ciliate in the lower half. Ovary strigose on the apex, with 3 carpels bearing small hump-like processes. Style glabrous.

CERES DIV.: Matroosberg, *A. Bolus* in Guthrie Herb. 4398; summit of the Matroosberg, *Compton* 8427; Laaken Vlei, *Phillips* 1964 (type, in S. Afr. Mus. Herb.); Roodeberg, *Stokoe* 8303.

Flowering Jan.

88. **A. cedrimontana** *Dümmer in Ann. Bolus Herb.* iii, 59 (1920)!

Branchlets glabrous. Leaves 2—3 mm. long, alternate, erect, subimbricate, narrowly ovate or narrowly obovate, obtuse, rounded at the base, concave and smooth above, pilose-ciliate, rounded and with scattered glands and minute pustules beneath. Flowers in terminal clusters. Peduncles 1.5—2 mm. long, glabrous, with 2 bracteoles on the upper half. Sepals 1.5—2 mm. long, ovate or oblong-lanceolate, obtuse, densely ciliate, rounded beneath. Petals 4—5 mm. long, glabrous; blade obovate- or oblong-elliptic, very obtuse; claw $\frac{2}{3}$ as long, linear. Stamens glabrous. Staminodes 2.5—3 mm. long, lanceolate, acuminate, oblong at the base, slightly concave above, pubescent beneath. Ovary pustulate, with 3 carpels bearing oblong smooth processes usually tipped with setiform hairs. Style glabrous. Fruit tubercled, often sparsely pilose on the upper half.

CERES DIV.: Southern Cederberg, Hondverbrand Ridge, east spur, *Esterhuysen* 12729; Cold Bokkeveld, "Rosendal," *Acocks* 5812.—CLANWILLIAM DIV.: Cederberg, *Pattison* in *Bolus* Herb. 15832 (type); Kromme-rivier, *Acocks* 3125, 3176, *Leighton* in *Bolus* Herb. 21589.

Flowering Sept.—Dec. There is a close affinity with *A. squamosa* Bartl. and Wendl. from which it differs by the leaves being narrower in proportion to the length, and by the claw of the petals being shorter than the blade.

89. **A. alticola** Schltr. ex Dümmer in Fed. Rep. xi, 324 (1912)!

Branchlets sparsely pubescent. Leaves 3·5—5·5 mm. long, alternate, subimbricate, obovate, obtuse, $\pm$ concave and glabrous above, with raised glands and minutely setaceo-pubescent or glabrous beneath. Flowers in dense terminal clusters subtended by scarious leaves. Peduncles 1 mm. long, with bracteoles at the middle. Sepals 2·5 mm. long, elliptic or ovate-oblong, very obtuse, slightly concave and pubescent above, hyaline at the margin, with a slightly prominent hispid nerve beneath, gibbous and glandular behind the apex, ciliate. Petals 5 mm. long; blade obovate; claw slightly longer, slender, pilose on the lower half. Stamens glabrous. Staminodes adnate for a third of the length to the lower half of the petals, with a linear-oblong blade and slender pilose claw. Disk well developed, crenulate. Ovary with stalked glands on the upper half, with 3 carpels bearing rotund glabrous or sparsely setose processes. Style for the most part pilose.

CERES DIV.: Skurfsberg, near Wagenbooms River, *Schlechter* 10172 (type, in Kew Herb., cotypes in Albany Mus. and Bolus Herb.); Schoongezicht Peak, *Stokoe* 8308; Skilderberg, *Stokoe* 2655; between Matroosberg and Peak C., *Esterhuysen* 8301.—WORCESTER DIV.: Mostert's Hoek Twins, *Esterhuysen* 9815; Milner Peak, *Esterhuysen* 8720, 14262, 14908, 14947, 14959; Matroosberg, *Stokoe* 8296; Buffelhoek Peak, *Esterhuysen* 8403, 14842, 14851; Mt. Brodie, *Esterhuysen* 8435; Shale Peaks, *Esterhuysen* 8458, 8491, 8737; Fonteintjiesberg, *Esterhuysen* 8766; Waaihoek Peak, south-east side, *Esterhuysen* 14840, 15122.

Flowering Dec., Jan. This species has a very close affinity with *A. alpina* Schltr.

90. **A. alpina** Schltr. in Journ. Bot. xxxvi, 25 (1898)!; Dümmer in Fed. Rep. xi, 416 (1912). **A. paludosa** Dümmer in Ann. Bolus Herb. iii, 61 (1920)!

Branchlets glabrous, puberulous or pilose. Leaves 3—8 mm. long, alternate, appressed, ascending or erect-spreading, sometimes imbricate, oblanceolate or obovate-oblong, elliptic-oblong, oblong or obovate, obtuse, rounded at the base, concave above, rounded and conspicuously gland-punctate beneath, at first pilose-ciliate and pilose beneath, usually becoming glabrous. Flowers in dense terminal clusters. Peduncles 1·25—3 mm. long, glabrous or sparsely pilose, with ovate or oblong bracteoles

on the lower half. Sepals 2—2.5 mm. long, elliptic, obovate- or rotund-elliptic, oblong or ovate, obtuse or subtruncate, concave and glabrous or pubescent above, sometimes hyaline at the margin or partly ciliate with hairs or stalked glands, sometimes slightly keeled and pubescent behind the apex. Petals 3.75—6 mm. long; blade obovate, very obtuse, glabrous; claw $\frac{1}{2}$ as long, slender, glabrous, or ciliate near the base. Stamens glabrous. Staminodes 3—3.75 mm. long, linear, linear-oblong or linear-obovate in the upper half, truncate or obtuse, tapering in the lower half, pilose at the middle, often with marginal stalked glands near the base, with a conspicuous gland behind the apex. Ovary tubercled, with 3 carpels bearing oblong or obovate pilose processes. Style for the most part pilose.

CERES DIV.: Matroosberg, near Laaken Vlei, *Phillips* 1963, 1967 (type of *A. paludosa*, in S. Afr. Mus.); Conical Peak, *Stokoe* 8296, 8298; Gydoŋw, *Compton* 18735; Roodeberg, *Esterhuysen* 1497, *Leighton* 2204; Hottentots Kloof, mountain tops, *Pearson* 4930, 4932.—LAINSBURG DIV.: Witteberg, south slopes, *Compton* 2799, 21139; Witteberg, summit, *Compton* 3184, 12204.—WORCESTER DIV.: Matroosberg, *Marloth* 2259 (type of *A. alpina*, in National Herb., cotype in Bolus Herb.), 2259 a and b., *A. Bolus* in Guthrie Herb. 3966; Keeromsberg, *Esterhuysen* 9219; Bonteberg, Eikenbosch Hoek, *Esterhuysen* 3763.

Flowering Oct.—Dec.

91. **A. concava** sp. nov.; ramulis pubescentibus; foliis alternatis ovatis vel late ovatis subacutis vel obtusis, supra concavis glabris vel hispidulis, margine pilosis, subtus sparse pilosis; floribus terminalibus; pedunculis puberulis bracteolatis; sepalis oblongis obtusissimis ciliatis, subtus pubescentibus; petalis ovatis obtusis concavis unguiculatis; staminibus ad medium sparse pilosis; staminodis lineari-oblongis obtusis, basin versus attenuatis sparse pilosis, apice glandula notatis; ovario 3-loculari dense piloso, cornubus minutis; stylo sparse piloso.

Dwarf shrublet with rigid branches and long-pubescent branchlets. Leaves 3—5 mm. long, alternate, very crowded, erect-spreading, ovate, sometimes widely obovate, subacute or obtuse, concave, smooth and glabrous or minutely papillate and hispidulous above, pilose on the margin, with many scattered glands beneath and, at first, sparsely pilose, often persistently. Flowers in terminal clusters. Peduncles 1.25—1.5 mm. long, puberulous and with small stalked glands, with linear bracteoles at the apex or on the upper half. Sepals 2.5 mm. long, oblong, very obtuse, sparsely pubescent above, conspicuously ciliate, convex and pubescent beneath. Petals 5—5.5 mm. long; blade rather narrowly ovate, obtuse, concave, sometimes pilose beneath; claw $\frac{1}{2}$ — $\frac{2}{3}$ as long,

linear. Stamens with filaments sparsely pilose at the middle. Staminodes 4—4.5 mm. long, $\frac{2}{3}$ adnate to the claw of the petals, linear and very sparsely pilose at the base, with a linear-oblong blade tapering to an obtuse gland-tipped apex. Disk very prominent, splitting into 5 lobes. Ovary densely pilose, with 3 carpels bearing minute rotund processes hidden by hairs. Style sparsely pilose except towards the apex.

WORCESTER DIV.: Hex River Mts., Buffelshoek Peak, *Esterhuysen* 8409 (type, in Bolus Herb.); Buffelshoek Twins, *Esterhuysen* 8391; Shale Peaks, *Esterhuysen* 8492; Milner Ridge Peak, *Esterhuysen* 8739, 14257, 14870.

Flowering Dec. The affinity is with *A. alticola*, differing with the leaves not constantly obovate and the petals having an ovate blade. The name is in allusion to the concave petals.

92. *A. stilbeoides* Dümmer in *Ann. Bolus Herb.* iii, 45 (1920)! *A. lycopodioides* Bartl. and Wendl. var. *trichostyla* Dümmer in *Fed. Rep.* xi, 404 (1912)!

Branchlets pubescent. Leaves 2.75—4.5 mm. long, alternate, crowded, erect-spreading, ovate, rarely lanceolate-ovate, obtuse, subacute or acute, rounded at the base, slightly incurved at the apex, concave and sparsely puberulous or glabrous above, ciliate, ecarinate, $\pm$ scabrid pubescent and with prominent glands beneath. Flowers in terminal clusters. Peduncles 0.5—0.75 mm. long, puberulous, with narrowly oblanceolate puberulous bracteoles on the upper half, subtended by oblanceolate ciliate bracts. Sepals 2.5 mm. long, spatulate or obovate-oblong, obtuse, concave and glabrous above, ciliate, ecarinate, glandular and pubescent beneath on the upper half. Petals 5—7 mm. long; blade obovate or rotund, sparsely pubescent above on the lower part, with a gland behind the apex; claw $1\frac{1}{2}$ —2 times as long, narrowly linear, sparsely pilose above. Stamens glabrous. Staminodes about 3.25 mm. long, partly adnate to the petals, slender, subspathulate at the apex, pilose on the slender free portion. Disk divided at the margin into 5 transversely oblong lobes. Ovary puberulous, with 1 carpel without any evident process. Style pilose.

CLANWILLIAM DIV.: Cederberg, *Stokoe* 8305; Sneeuwkop, summit, *Leipoldt* 650 (type of *A. stilbeoides* in S. Afr. Mus. Herb., cotypes in Albany Mus. and Bolus Herb.), *Compton* 6248, *Pocock* 198; peak south of Sneeuwkop, *Esterhuysen* 7586; Sneeuwberg, *Esterhuysen* 13847; Krakadousberg, *Esterhuysen* 7501, 12105, 14319; Wolfberg, *Esterhuysen* 13811; without precise locality, *Wallich* in Kew Herb. (type of *A. lycopodioides* var. *trichostyla*).

Flowering Oct.—March.

93. *A. adnata* sp. nov.; ramulis villosis; foliis alternatis ovato- vel oblongo-lanceolatis vel ellipticis obtusis, supra concavis, margine saepe pubescentibus, subtus convexis pilosis vel villosis; floribus terminalibus; pedunculis pubescentibus bracteolatis; sepalis lineari-oblongis obtusissimis ciliatis, supra pubescentibus; petalis ellipticis vel obovatis, infra medium unguiculatis pilosis; staminibus glabris; staminodis linearibus, infra medium unguiculatis, basin versus adnatis; ovario 2—3-loculari pubescente piloso ecornuto; stylo piloso.

A much branched shrublet usually 20—30 cm. high with villous branchlets. Leaves 3—5 mm. long, alternate, crowded, erect-spreading, ovate- or oblong-lanceolate, elliptic or rarely obovate, obtuse, concave and sometimes minutely papillate above, often pubescent on the margin, rounded beneath, with conspicuous scattered glands, amply pilose or villous. Flowers in terminal clusters. Peduncles 1.5—3 mm. long, puberulous or pubescent, often with minute stalked glands, bearing linear pubescent bracteoles on the upper half. Sepals 1.5—2.5 mm. long, linear-oblong, very obtuse, slightly concave and sparsely pubescent above and beneath, long-ciliate. Petals 4—5 mm. long; blade elliptic or narrowly obovate, obtuse, glabrous; claw $1\frac{1}{2}$ times as long, filiform, pilose. Stamens glabrous. Staminodes $\frac{2}{3}$ — $\frac{3}{4}$ as long as the petals and adnate to the lower half, with a linear blade and a filiform ciliate claw. Disk clasping the ovary. Ovary pubescent and pilose, with 2 or rarely 3 laterally compressed carpels without processes. Style pilose. Fruit bearing small conical processes on the dorsal angle of the cocci.

CERES DIV.: Cederberg, Sandfontein Peak, *Esterhuysen* 13874; Gideon's Kop, *Esterhuysen* 13896.—CLANWILLIAM DIV.: Cederberg, *Stokoe* 8304; Langberg, *Esterhuysen* 7329; Sphinx, *Esterhuysen* 7587 (type, in Bolus Herb.); peak north of Tafelberg, *Esterhuysen* 14322.

Flowering Nov.—Jan. The affinity is with *A. humilis* Sond. from which it differs mostly with bracteoles on the upper half of the peduncle, with very obtuse more hairy sepals, and with carpels without processes. The name alludes to the adnate staminodes.

94. *A. humilis* Sond. in *Harv. and Sond. Fl. Cap.* i, 407 (1860)! Var. *capitata* Dümmer in *Ann. Bolus Herb.* iii, 45 (1920)! *Hartogia humilis* O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets pubescent. Leaves 5—6 mm. long, alternate, erect-spreading, lanceolate or ovate-lanceolate, acute or obtuse, rounded at the base, concave and glabrous or sparsely pilose above, rounded tuberculate-scabrid and pilose beneath, becoming glabrous. Flowers in terminal clusters. Peduncles 1—2 mm. long, puberulous, with linear ciliate bracteoles on the lower half. Sepals 2—2.25 mm. long, lanceolate, oblong-

lanceolate, oblong, lanceolate- or oblanceolate-oblong, obtuse or subacute, concave and glabrous above, hyaline and ciliate at the margin, obtusely keeled and glabrous or sparsely setose beneath. Petals 5—5.5 mm. long; blade elliptic-oblong, obtuse, glabrous; claw as long, filiform sparsely ciliate. Stamens glabrous. Staminodes 4—4.5 mm. long, linear-oblong in the upper half, obtuse, filiform ciliate and adnate to the petals in the lower half. Ovary pubescent on the apex, with 2 carpels bearing very small rounded processes. Style pilose.

CLANWILLIAM DIV.: Blaauwberg, *Drège* 7098 (type, in Stockholm); Cederberg, Grootberg, *Leipoldt* 893 (type of var. *capitata* in S. Afr. Mus. Herb., cotype in Bolus Herb.); Northern Cederberg, ridge on plain at Boontjeskloof, *Esterhuysen* 12211; below peak at Koupoort, *Esterhuysen* 12146.

Flowering Oct.—Dec.

95. *A. conferta* sp. nov.: ramulis hispidis; foliis alternatis subimbricatis obovatis obtusis vel subacutis, basin obtusissimis, supra paulum concavis sparse hispidulis; floribus terminalibus; pedunculis sparse hispidulis ebracteolatis; sepalis lanceolatis obtusis ciliatis, subtus hispidulis; petalis obovatis unguiculatis glabris; staminibus glabris; staminodis spathulatis, infra medium filiformibus sparse pubescentibus; ovario 5-loculari tuberculato, cornubus late obovatis; stylo pubescente.

Branchlets hispid. Leaves 5—6 mm. long, alternate, subimbricate, erect-spreading, obovate, often widely so, obtuse or subacute, rounded at the base, slightly concave and often sparsely hispidulous above, with gland-swelling and small stalked glands at the margin, convex, hispid and conspicuously nerved beneath. Flowers in dense terminal clusters. Peduncles 2.5—3 mm. long, sparsely hispidulous, ebracteolate. Sepals 2.5 mm. long, lanceolate or oblong-lanceolate, obtuse, concave above, densely ciliate, sometimes with stalked glands on the margin, conspicuously thickened behind the apex. Petals 6 mm. long, glabrous; blade obovate, very obtuse; claw $1\frac{1}{2}$ —2 times as long, filiform. Stamens glabrous. Staminodes 3.5 mm. long, spathulate, sparsely pubescent on the filiform lower half. Disk with 5 widely deltoid very obtuse lobes. Ovary with 5 carpels tubercled at the apex and bearing widely obovate hispid processes. Style pubescent except at the apex.

CLANWILLIAM DIV.: Northern Cederberg, Krakadousberg, near summit, *Esterhuysen* 14318 (type, in Bolus Herb.), 15004.

Flowering Dec. A distinct species without any evident affinity. The name alludes to the crowding of the leaves.

96. *A. Peglerae* Dümmer in. *Fed. Rep.* xi, 325 (1912)! *A. mixta*

Dümmer op. cit. 329, incl. var. **albaniensis!** **A. Bunburyana** *Dümmer op. cit.* 419.

Branchlets glabrous or hispidulous. Leaves 0.6—1.4 cm. long, alternate, crowded, ascending or erect-spreading, linear, obtuse or subacute, cuneate at the base, concave above, rounded or obtusely keeled and with scattered glands beneath, sometimes slightly swollen behind the apex, glabrous, or rarely pilose beneath. Flowers in terminal clusters. Peduncles 4—6 mm. long, glabrous, with lanceolate bracteoles on the lower half. Sepals 2.25—2.5 mm. long, lanceolate, obtuse, ciliate, with a keel extending down to the peduncle. Petals 5—6.5 mm. long; blade ovate, elliptic, elliptic-obovate or elliptic-oblong, obtuse or subacute, tapering at the base, concave at the apex, sparsely pilose above; claw half to almost as long, narrowly linear, pilose. Stamens pilose on the lower half of the filaments. Staminodes 5—6 mm. long, narrowly linear, tipped with a gland, filiform towards the base, pilose except towards the apex. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

ALBANY DIV.: near Grahamstown, [*Bunbury* (type of *A. Bunburyana* in Brit. Mus.), not seen] Britten 5168, Galpin 326, Schönland 283, MacOwan 176 (type of var. *albaniensis* in Bolus Herb.), 1045, Bolus 10624, Glass in S. Afr. Mus. Herb. 30731; Featherstone Kloof, Rennie 207; Mountain Drive, Dyer 2283.—BATHURST DIV.: between Theopolis and Port Alfred, Burchell 3974; Glenfilling, Drège 7097 partly (type of *A. mixta* in Kew Herb.).—EAST LONDON DIV.: Golf Course, Rattray 1260.—KENTANI DIV.: coast belt, Pegler 795 (type of *A. Peglerae* in Bolus Herb.).

Flowering Oct.—Febr. The affinity is very close to *A. gonaquensis* from which it probably is best distinguished by the difference in the shape and relative lengths of the parts of the petals.

97. **A. gonaquensis** Eckl. and Zeyher, *Enum.* 110 (1835)!; Bartl. in *Linnaea* xvii, 375 (1843); Sond. in *Harv. and Sond. Fl. Cap.* i, 411 (1860); *Dümmer in Fed. Rep.* xi, 328 (1912). **Hartogia gonaquensis** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets shortly pubescent or glabrous. Leaves 6—9 mm. long, alternate, crowded, ascending, linear, obtuse, rounded at the base, concave above, rounded or obtusely keeled and with minute glands beneath, distinctly gibbous behind the apex, glabrous, or sometimes at first pilose beneath. Flowers in terminal clusters. Peduncles 3—4 mm. long, sparsely pilose on the lower half, with linear ciliate bracteoles at or below the middle. Sepals 2—2.5 mm. long, linear-lanceolate, obtuse, pilose-ciliate, with a keel extending down to the apex of the peduncle. Petals 5—6 mm. long; blade obovate, obtuse, concave above in the upper half,

often with a few long hairs on the lower half; claw twice or almost twice as long, filiform, pilose except at the base. Stamens pilose on the middle part of the filaments. Staminodes 5—6 mm. long, narrowly linear in the upper half, filiform in the lower half, tipped with a rotund gland, pilose on the middle part. Ovary pilose on the apex, with 3 carpels bearing rotund glabrous processes. Style glabrous.

PORT ELIZABETH DIV.: Algoa Bay, *Cooper* 1462; Koega, *Zeyher* 2165; Kavis River, *Drège* 7110; Baakens River Valley, *I. L. Drège* 365, *Long* 208; Schoenmakers Kop, *Paterson* 572; New Brighton, *Galpin* 6423; Theescomb, *Paterson* 481, 572; 12 miles along the Cape Road, *Long* 548; Vaal Vlei Estate, *Mogg* 4742; between Port Elizabeth and Witte Klip, *Rodin* 1018.—UITENHAGE DIV.: flats between Krakamma and Van Stadens, *Zeyher* 962, *Ecklon and Zeyher* 864 (cotypes in Kew Herb., Lund, National Herb. and S. Afr. Mus. Herb.); Redhouse, *Paterson* 2274.

Flowering Jan.—Dec.

98. **A. Hookeri** *Sond. in Harv. and Sond. Fl. Cap.* i, 406 (1860)!; *Walgate in Fl. Cape Peninsula* 540 (1950). **Hartogia Hookeri** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets coarsely pubescent or pilose. Leaves 0·8—1 cm. long, alternate, ascending and imbricate, or erect-spreading, linear or lanceolate-linear, obtuse, rounded at the base, usually slightly incurved, concave and glabrous above, strongly involute at the margin, rounded, $\pm$ pilose and with impressed glands beneath, or only pilose on the margin, sometimes minutely tuberculate-scabrid. Flowers in terminal clusters surrounded by many widened leaves with scarious margins. Peduncles 1·5—3 mm. long, with long narrowly linear ciliate bracteoles on the upper half. Sepals 4·5 mm. long, linear, subacute, slightly widened in the upper half, slightly concave above, ciliate, sparsely pilose beneath. Petals 5—9 mm. long, glabrous; blade elliptic-oblong, obtuse, concave above, tapering into a slender claw 3 times as long. Stamens glabrous. Staminodes 5·5 mm. long, linear-oblong and pilose on the upper half, tapering to an acute reflexed apex, narrowly linear in the lower half. Ovary pubescent on the apex, with 3 carpels bearing small rounded processes. Style pubescent at the base.

CAPE DIV.: hills near Simonstown, *Hooker* (type, in Kew Herb.); *Compton* 17559, *W. Dod* 2058; Faroe Kop, *Walgate* 1; Slangkop, *Lamb.* 1283; Table Mt. above Llandudno, *Esterhuysen* 14128; Smitswinkel Bay, *Esterhuysen* 7981; Bonteberg, *Esterhuysen* 7982, *Compton* 9368; Rooi-hoogte, *Compton* 13783; Paul's Berg, *Barker* 4306; Patrys and Smitswinkel vleis, *W. Dod* 1503, *Pillans* 8979; near Sirkels Vlei, *Compton*

16338, *Salter* 2850; Cape Point, *Compton* 18293.—CALEDON DIV.: near Palmiet River Mouth, *Gillett* 4247, *Levyns* 7777; near Palmiet River, foothills of Platteberg, *Stokoe* in *Bolus* Herb. 33942; Hanglip, *Compton* 13579.

Flowering Aug.—Nov. Plants which have not been burnt at some time are rarely seen. They are sparingly branched, the branches being usually decumbent, and the leaves have hairs only on the margins. Leaves on plants which have produced branches after being burnt down to the level of the ground are covered with hairs on the lower face.

99. ***A. squamosa*** *Bartl. and Wendl. Diosm.* 141 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 418 (1860); *Dümmer in Fed. Rep.* xi, 403 (1912). ***Diosma squamosa*** *Willd. ex Roem. and Schultes, Syst. Veg.* v, 462 (1819); *Spreng. Syst. Veg.* i, 787 (1825). ***Hartogia squamosa*** *O. Kze. Rev. Gen.* i, 102 (1891).

Branchlets glabrous. Leaves 1·5—2 mm. long, alternate, ascending, subimbricate, obovate or rotund, obtuse, rounded at the base, deeply concave and smooth above, pilose-ciliate, rounded and with raised glands beneath, with a petiole ciliate on the decurrent base. Flowers in terminal clusters. Peduncles about 1 mm. long, glabrous, with bracteoles on the upper half. Sepals 1·5 mm. long, obovate, obtuse, rounded and with a few glands beneath, ciliate. Petals 5 mm. long, glabrous; blade elliptic, obtuse; claw almost twice as long, linear. Stamens glabrous. Staminodes 2·5 mm. long, fusiform, concave above, pubescent beneath at the margin, with an apical gland. Ovary tubercled, with 3 carpels bearing oblong obtuse processes pilose at the apex. Style glabrous. Fruit coarsely tubercled.

CERES DIV.: hills east side of Karoo Poort, *Acocks* 1666, *Levyns* 4626, *Esterhuysen* 2577, *Barker* 3018, *Marloth* 9069; between Bokkeveld Sneeuw-kop and Winklehaaks River, "Zuurvlakte," rocky ridge, *Esterhuysen* 12681.—WORCESTER DIV.: hills near Touws River *Bolus* 7358.

Flowering June—Sept.

100. ***A. hispida*** *Bartl. and Wendl. Diosm.* 132 (1824) excl. syn. *Linn. et Murr.*; *Sond. in Harv. and Sond. Fl. Cap.* i, 429 (1860) excl. syn. *Linn. et Murr.* ***Diosma hispida*** *Thunb. Prodr.* 42 (1794)!; *ej. Diss. Diosm.* 4 (1797); *Willd. Sp. Pl.* i, 1135 (1798) excl. syn. *Linn. et Murr.*; *Pers. Syn. Pl.* i, 247 (1805) excl. syn.; *DC. Prodr.* i, 716 (1824) excl. syn. *Linn. Bucco hispida* *Roem. and Schultes, Syst. Veg.* v, 446 (1819) excl. syn. *Linn. et Murr.* ***Agathosma trachyphylla*** *Eckl. and Zeyher, Enum.* 110 (1835)!

Branchlets pubescent. Leaves mostly 0·6—1·2 cm. long, alternate,

crowded, erect-spreading, linear or oblong, acute, subacute or obtuse, rounded or cuneate at the base, concave above, obtusely keeled beneath, persistently hispid throughout, with 4 rows of glands beneath. Flowers in terminal clusters. Peduncles 4 mm. long, puberulous, with slender bracteoles on the lower half. Sepals 1.25—1.5 mm. long, ovate-lanceolate, obtuse, convex and puberulous beneath. Petals 5 mm. long, glabrous; blade oblong-obovate; claw $1\frac{1}{2}$ times as long, slender. Stamens glabrous. Staminodes 1.5 mm. long, linear-oblong, attenuate, gland-tipped, tapering towards the base, concave above, shortly ciliate. Ovary pilose on the apex, with 3 carpels bearing oblong pilose processes. Style glabrous.

MALMESBURY DIV.: Zwartland and Paardeberg, *Ecklon and Zeyher* 865 (cotypes of *A. trachyphylla* in S. Afr. Mus. and Stockholm); Paardeberg, east slopes, *Pillans* 6317, 7657.—PAARL DIV.: Paarl Mt., *Drège* 7099, *Henderson* 1192; near Paarl, *Burchell* 755.—PIKETBERG DIV.: between Piketberg and Verlooren Vlei, *Thunberg* (cotype of *A. hispida* in Stockholm).

Flowering June—Oct. The affinity is with *A. bisulca* B. and W., from which it differs chiefly in the shape of the petals.

101. *A. capitata* *Sond. in Harv. and Sond. Fl. Cap.* i, 434 (1860)! **Hartogia capitata** *O. Kze. Rev. Gen.* i, 101 (1891). **A. capituliformis** *Dümmer in Fed. Rep.* xi, 327 (1912)! excl. var.

Branchlets glabrous. Leaves 3.5—5 mm. long, alternate, ascending, slightly incurved towards the apex, subimbricate, lanceolate, subacute, shortly cuneate at the base, concave and glabrous above, pilose-ciliate, conspicuously keeled and with scattered glands beneath, tubercled and pilose on the keel. Flowers in terminal clusters. Peduncles 1—2 mm. long, glabrous, with bracteoles at or near the apex. Calyx glabrous. Sepals 2.5 mm. long, oblong-lanceolate, obtuse, concave above, obtusely keeled beneath. Petals 4—6 mm. long; blade obovate, obtuse; claw $1\frac{1}{2}$ times or almost twice as long, filiform, glabrous, or sparsely pilose on the lower half. Stamens glabrous. Staminodes 2.75—3.25 mm. long, linear, tapering towards both ends, pilose at the middle. Ovary pilose on the apex, with 3 carpels bearing linear-oblong pilose processes. Style glabrous. Fruit with reticulate ridges.

PIKETBERG DIV.: Piketberg, by water courses, *Drège* (type of *A. capitata* in Stockholm, cotypes in Kew Herb. and National Herb.); plateau on the Piketberg, *Schlechter* 5238 (cotypes of *A. capituliformis* in Albany Mus., Bolus Herb., Kew Herb. and S. Afr. Mus. Herb.).

Flowering Sept.—Nov. E. Meyer identified material of this species in *Drège's* Herbarium as being "*A. erecta*," but it is distinct from *A. erecta* Bartl and Wendl.

102. **A. collina** Eckl. and Zeyher, *Enum.* 110 (1835)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 407 (1860); *Dümmer in Fed. Rep.* xi, 324 (1912). **A. graveolens** Meissn. in *Flora* xxvii, 302 (1844)! **Hartogia collina** O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets with spreading pubescence. Leaves 3·5—5 mm. long, alternate, ascending, subimbricate, slightly incurved, ovate-lanceolate, subacute, rounded at the base, concave and scabridous above, obtusely keeled, with many raised glands beneath, tipped with a rigid hair, yellow-green. Flowers in terminal clusters. Peduncles 1·5—2·5 mm. long, sparsely puberulous, with large bracteoles at or near the apex. Sepals 2—2·5 mm. long, oblong-ovate or ovate-lanceolate, obtuse, membranous at the margin, ciliate, keeled on the upper half. Petals 4·5 mm. long; blade ovate or rotund, villous above on the lower half; claw $1\frac{1}{2}$ times as long, linear, villous. Stamens with very sparsely pilose filaments. Staminodes 3·5 mm. long, adnate to the lower part of the petals, linear, villous, with a large terminal gland. Ovary glabrous, with 3 carpels bearing clavate processes. Style glabrous.

South Africa: without precise locality, *Thorn* 481, 831.—BREDASDORP DIV.: Cape Agulhas, *Schlechter* 10553, *Esterhuysen* 7625, *Pillans* 8177; "Brandfontein," among dunes near the shore, *Smith* 4968; Struys Bay, *Salter* 4102, *Levy's* 3538, *Walgate* in *Natal Herb.* 37245; Marcus Bay, "Wagenhuis Kraal," *Fry* in *Galpin Herb.* 4952.—CALEDON DIV.: mountain slopes near Genadendal, *F. Krauss* 1447 (cotype of *A. graveolens* in Stockholm) [It is very doubtful whether the plant was collected in this locality].—SWELLENDAM DIV.: hills near Swellendam, *Mund* in *Ecklon and Zeyher Herb.* 860 (cotypes of *A. collina* in S. Afr. Mus. and Stockholm) [There is some doubt as to the correctness of this locality].

Flowering April—Dec.

103. **A. capensis** *Dümmer in Fed. Rep.* xi, 421 (1912); *Druce in Rep. Bot. Exch. Club. Brit. Isles* 1913, iii, 413; *Walgate in Fl. Cape Peninsula* 542 (1950). **Hartogia capensis** *Linn. Syst. Nat.* ed. 10, ii, 939 (1759) [non *Linn. Sp. Pl.* ed. 2, ii, 288 (1762)]. **Diosma brevifolia** *Lam. Encycl. Meth.* iii, 285 (1786). **D. ciliata** *Thunb. Prodr.* 43 (1794); *ej. Diss. Diosm.* 11 (1797); *Willd. Sp. Pl.* i, 1135 (1798) excl. syn. *Berg. et Linn.*; *Pers. Syn. Pl.* 247 (1805); *Roem. and Schultes, Syst. Veg.* v, 459 (1819) excl. syn. *Linn.*; *Thunb. Fl. Cap. ed. Schultes* 225 (1823). **D. capensis** *Ait. Hort. Kew.* iii, 488 (1789); *Murr. Syst. Veg.* ed. 15, p. 250 (1797) excl. syn. *Linn.* **Bucco erecta** *Wendl. Collect.* i, 17, t. 3 (1805); *Roem. and Schultes, Syst. Veg.* v, 441. **Bucco brevifolia** *Roem. and Schultes, Syst. Veg.* v, 446. **Diosma thyoides** *Willd. ex Roem. and Schultes, Syst. Veg.* v, 462. **D. erecta** *DC. Prodr.* i, 715 (1824). **Agathosma erecta** *Bartl. and Wendl.*

Diosm. 135 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 434 (1860); *Engl. in Engl. and Prantl, Pflanzenfam.* iii, §14, p. 151 (1896). **A. Thunbergiana** Bartl. and Wendl. *Diosm.* 150. **A. patula** G. F. W. Mey. in Bartl. and Wendl. *Diosm.* 124. **Diosma Thunbergiana** Spreng. *Syst. Veg.* i, 786 (1825). **Agathosma ericoides** Schldl. in *Linnaea* vi, 206 (1831); *Sond. in Harv. and Sond. Fl. Cap.* i, 431; *Dümmer in Fed. Rep.* xi, 420. **A. fastigiata** Eckl. and Zeyher, *Enum.* 117 (1835)!; *Sond. op. cit.* 436. **A. platypetala** Eckl. and Zeyher, *Enum.* 116!; *Dümmer in Fed. Rep.* xi, 410 incl. var. *glabricalyx*. **A. chortophila** Eckl. and Zeyher, *Enum.* 116!; *Bartl. in Linnaea* xvii, 367 (1843); *Sonder op. cit.* 435; *Dümmer op. cit.* 421. **A. cyminoides** Eckl. and Zeyher, *Enum.* 117!; *Bartl. op. cit.* 368. **A. nigra** Eckl. and Zeyher, *Enum.* 117!; *Bartl. op. cit.* 366; *Sond. op. cit.* 436. **A. geminifolia** Eckl. and Zeyher, *Enum.* 115!. **A. decumbens** Eckl. and Zeyher, *Enum.* 116!; *Sond. op. cit.* 91. **A. Gillivrayi** Sond. *op. cit.* 437!; *Walgate in Fl. Cape Peninsula* 542. **A. hirtella** Sond. *op. cit.* 430!. **A. tenuis** Sond. *op. cit.* 423!. **A. glabrata** var. *Eckloniana* Sond. *op. cit.* 437!. **A. Thunbergiana** Sond. *op. cit.* 425. **A. variabilis** Sond. *op. cit.* 433; *Dümmer in Fed. Rep.* xi, 420. **A. juniperina** Sond. *op. cit.* 433!. **A. Owanii** Harv. and Sond. in *Harv. Thes. Cap.* ii, 42, t. 165 (1863); *Dümmer op. cit.* 422. **Hartogia chortophylla**, **H. decumbens**, **H. erecta**, **H. ericoides**, **H. fastigiata**, **H. Gillivrayi**, **H. hirtella**, **H. juniperina**, **H. nigra**, **H. patula**, **H. platypetala**, **H. Thunbergiana** *O. Kze. Rev. Gen. Pl.* i, 101 (1891). **H. tenuis**, *O. Kze. op. cit.* 102. **Agathosma lactea** Schltr. in *Engl. Bot. Jahrb.* xxvii, 161 (1900)!. **A. muizenbergensis** *Dümmer op. cit.* 409!; *Walgate in Fl. Cape Peninsula* 541. **A. gustrowensis** *Dümmer op. cit.* 406!. **A. neglecta** *Dümmer op. cit.* 422!. **A. delicatula** Compton in *Trans. Roy. Soc. S. Afr* xix, 297 (1931)!.

A shrublet varying considerably in height. Branchlets glabrous, puberulous, pubescent or pilose, sometimes with stalked glands. Leaves 1.5—7 mm. long, alternate, erect-spreading or suberect, ovate, oblong-ovate, oblong, lanceolate, linear-lanceolate, lanceolate-linear or linear, acute, subacute, obtuse or rounded at the apex, rounded at the base, often incurved at the apex, $\pm$ concave above, convex and $\pm$ keeled beneath, sometimes dorsally compressed, glabrous, ciliate, pilose on the margin and keel, puberulous, pilose or hispid above and beneath or only beneath, sometimes with conspicuous or small, sometimes stalked, glands beneath. Flowers in terminal clusters, or the lower axillary. Peduncles mostly 3—6 mm. long, puberulous, pubescent, pilose or, less often, glabrous, rarely with stalked glands, with bracteoles on the lower half. Sepals 1—2.5 mm. long, ovate, deltoid-ovate, lanceolate or ovate-lanceolate, acute, subacute or obtuse, keeled on the upper half, sometimes membranous at the margin, glabrous or $\pm$ pubescent beneath, $\pm$ ciliate,

rarely with stalked glands. Petals 3—5 mm. long; blade rotund, obovate-rotund, elliptic, obovate or obovate-elliptic, obtuse, sometimes pubescent above the nerve; claw scarcely half as long to equal in length, linear or narrowly so, glabrous or ciliate. Stamens glabrous. Staminodes 1.25—4 mm. long, linear, linear-lanceolate, lanceolate or lanceolate-oblong, attenuate, gland-tipped, cuneate or linear at the base, concave and $\pm$ pubescent above at the middle, $\pm$ ciliate. Ovary glabrous, or pilose at the apex, with 3 or sometimes 2 carpels having oblong or obovate pilose or glabrous processes. Style glabrous or pilose at the base.

South Africa: without precise locality, *Drège* 7105, *Harvey* 549, *Thom* 330, 548.—ALBANY DIV.: near Grahamstown, *MacOwan* (type of *A. Owanii* in Trin. Coll. Dublin); Highlands, *Daly and Sole* 328; Hills near Salem, *Bennie* 737.—ALEXANDRIA DIV.: between Port Elizabeth and Grahamstown, *Story* 1304; near De Kol, *Grant* 14; near Sandflats, *Burt-Davy* 14257.—BATHURST DIV.: near mouth of Great Fish River, *MacOwan* 343.—BREDASDORP DIV.: Koude Rivier, *Schlechter* 9615 (cotypes of *A. lactea* in Albany Mus., Bolus Herb., Kew and National Herb.).—CALEDON DIV.: Hermanus, *Rogers* 26594; Caledon, *Lamb* 2198; hills between the Zwartberg and Kleinriviersberg, *Ecklon and Zeyher* 917 (cotypes of *A. nigra* in Kew, National Herb., S. Afr. Mus. Herb. and Stockholm); Grabouw, *Bolus* 4118; Zwartberg, *Guthrie* 2479; Aries Kraal, *Compton* 16473; Klein River Mts., *Stokoe* 8283; Frikkiesbaai, *Leighton* 1911; between Villiersdorp and French Hoek, *Bolus* 5140.—CALVINIA DIV.: between Nieuwoudtville and Oorlogs Kloof, *Leipoldt* 3719.—CAPE DIV.: Phisante Kraal, *Compton* 16922, *Levy* in Bolus Herb. 23968; Durbanville, *Levy* 2519; between Paarden Island, Blaauwberg and Tigerberg, *Drège* 7111 (type of *A. tenuis* in Stockholm), *Lewis* in S. Afr. Mus. Herb. 53058; Tigerberg, *Pillans* 4756; Devil's Peak, *Bolus* 3856; Kasteels Poort, *Forbes* 108; above Camp's Bay, *MacOwan* 2708, in Herb. Norm. Austr-Afra. 554, *Letty* 175, *Galpin* 3875, *Penfold* 156, *Esterhuysen* 12284, 14127, *Walgate* 53; Lion's Head, *W. Dod* 3135, *Froembling* 93; Llandudno, *Compton* 14820; Hout Bay Nek, *Hutchinson* 101; Little Lion's Head, *Walgate* 52; Hout Bay, *Barker* 3286, *Walgate* 51; between Hout Bay and Chapman's Peak, *Pillans* 9981; west slopes of Chapman's Peak, *Compton* 9359, *Esterhuysen* 7985; Silvermine Valley, *Walgate* 34; between Constantiaberg and Noordhoek Peak, *Walgate* 33; Constantiaberg, *Pillans* 8984; Cape Flats near Rondebosch, *Lamb* 127; Doornhoogte, *W. Dod* 3622; Kenilworth, sandy flats, *Bolus* 7942; Tokai, sandy flats, *Levy* 5257, *Guthrie* 874; Muizenberg, *Bolus* 4633, 4647, 4648; Kalk Bay Mt., *Barker* 4204; Dassenberg, *Walgate* 41; Kommetjie, *Barker* 650, *Galpin* 3877; Clovelly, *Compton* 13359, *Walgate* 37, 44, 273; Scarborough and Witsands, *Walgate* 45, *Esterhuysen* 12953; Slangkop,

Esterhuysen 7984, *W. Dod* 1569; "Simon's Bay," *MacGillivray* 630 (type of *A. Gillivrayi* in Stockholm, cotype in Kew); mountains near Simons-town, *Compton* 18026, *Schlechter* 1070, *W. Dod* 1832, 2059; Klaasjagersberg, *Compton* 17567, *Leighton* 1493; Klaver Vlei, *W. Dod* 2057; Zwartkop Range, *Walgate* 40, 43; Klaasjager Farm, *Salter* 6390; Theeberg, *Walgate* 33; Bonteberg, *Compton* 9367, *Esterhuysen* 7983; Rooihoogte, *Compton* 13782, *Walgate* 56; Smitswinkel, *Compton* 10631, 18830, *Leighton* in *Bolus Herb.* 23975, *Walgate* 59; near Cirkels Vlei, *Compton* 16329, *Leighton* 1508; hills west of Buffels Bay, *Pillans* 4624; Tuin Kop, *Walgate* 55; Vasco da Gama Peak, *Walgate* 32; Cape Point, *Compton* 18292, 20238.—CERES DIV.: near Ceres, *Bolus* 8394; east base of the Witzenberg, *Leighton* 1326, *Pillans* 9631; Gydouw, *Compton* 18717, 18749, *Leipoldt* 3714, 3716; west base of the Schurfdeberg, *Esterhuysen* 14731, *Pillans* 9597, 9665, 9678; Schurfdeberg Pass, *Compton* 16802, 16811; Witzenberg, summit, *Andrae* 143; Olifants River Mts., south of Groen, *Esterhuysen* 13471; Witzenberg Vlake, *Compton* 21018; Michell's Pass, *Bolus* 23995, *Esterhuysen* 14161, *Schlechter* 8955; Michell's Peak, *Esterhuysen* 14750; 7 miles west of Gydouw, *Hutchinson* 1037; Southern Cold Bokkeveld, *Compton* 12496, *Levyns* 1952; Tafelberg, *Esterhuysen* 3921, *Bond* 693; ridges near Winkelhaaks River, *Esterhuysen* 12686; Laken Vlei, *Levyns* 1042, *Phillips* 1961; Zwart Ruggens, *Levyns* 1881; Karoo Poort, *Leipoldt* 3717; Mostert's Hoek Twins, *Wasserfall* 804, *Esterhuysen* 9904.—CLANWILLIAM DIV.: without precise locality, *Mader* 178; Kardouw (type of *A. hirtella* in Stockholm, cotype in S. Afr. Mus.); The Baths, *Stephens* in *Sladen Mem. Exped.* 7737; east slopes of Grassruggens, *Pillans* 8721; near Wupperthal, Honig Vlei, *Leipoldt* 646; Cederberg, *Stokoe* 8280, *Thode* A1973, A1974, A1976; Langberg, *Esterhuysen* 7358; near Sneeuwkop, *Esterhuysen* 7557; Langkloof, *Shaw* in *Bolus Herb.* 5607; between Citrusdal and Elands Kloof, *Stokoe* 8284, *Barker* 3777; Grootberg, *Esterhuysen* 4152; Pakhuis, *Barker* 783, *Bolus* 8960, *Esterhuysen* 7394, *Bond* 617, *Compton* 12694, *Galpin* 11079; Middelberg, *Compton* 12732, *Esterhuysen* 7178; Giftberg, *Compton* 20790; Elands Kloof, *Compton* 9703, 20966, *Esterhuysen* 3127, *Henderson* 2216, between Groot Rivier and Elands Kloof, *Leipoldt* 3713; Grey's Pass, *Schlechter* 4955; Twenty Four Rivers Mts., north side, *Esterhuysen* 16089; Cold Bokkeveld Mts., west slopes, *Esterhuysen* 15318.—GEORGE DIV.: Langkloof, Keurbooms River, *Fourcade* 5235; hills west of Keurbooms River, *Fourcade* 3369; Montagu Pass, *Schulchter* 5797; hills north of Gans Kraal, *Fourcade* 3402.—HUMANSDORP DIV.: between Ziefontein and Joubert's Kraal, Kouga, *Fourcade* 3112, 3121; Kouga Mts., *Esterhuysen* 10794; flats north of Humansdorp, *Schönland* 3031, 3026; near the coast at Slang Bay, *Keet* 892; Zitzikama, Diep River, *Fourcade* 775; Essen-

bosch, *Fourcade* 4422; between Humansdorp and Riet Vlei, *Fourcade* 5659; between Kromme River and Palmiet Vlei, *Fourcade* 5376; Zuurborn, *Fourcade* 3981; Loerie Plantation, *Dix* 79; hills at Essensbosch, *Fourcade* 4419.—LADISMITH DIV.: Roodeberg, *Compton* 3854; Seven Weeks Poort, *Phillips* 1417; near Ladismith, *Levy's* 4204, 8970, 8982, *Esterhuysen* 13999.—MALMESBURY DIV.: Moorreesburg, *Esterhuysen* 3127; between Bokbaai and Darling, *Esterhuysen* 7630; hills at Mamre, *Compton* 13882; Riebeeck Kasteel, near summit, *Pillans* 6094; Kalabas Kraal, *Salter* 4936.—MONTAGU DIV.: Montagu, *Compton* 18432; near the Koo, Eendracht Pass, *Levy's* 7959; Rabiesberg, *Compton* 5790; Baden Hills, *Compton* 18432; between Montagu and Triangle, *Michell* 176; Keur Kloof, *Compton* 5786, *Lewis* in Bolus Herb. 23930; Eendracht, *Compton* 18379; Dobbelaars Kloof, *Walgate* in Bolus Herb. 23423.—MOSSEL BAY DIV.: near Mossel Bay, Driefontein, *Drège* 7094.—OUDTSHOORN DIV.: Zwartberg Pass, *Bolus* 11461, 11462, *Luttig* in Marloth Herb. 11420, *Esterhuysen* 4540, 8952, *Hafstrom and Acocks* 783, *Stokoe* 9291; near Robinson's Pass, Moeras River Drift, *Bolus* 23931, *Hops* 97; Krevasberg, summit, *Stokoe* 8495.—PAARL DIV.: French Hoek, *Bolus* 5140, *Schlechter* 9271, 9293, 9328; Wemmershoek Mts., *Bond* 729, *Esterhuysen* 4099, 11234; French Hoek Pass, *Compton* 8166; Paarl Mt., *Drège* 7106, 7106a partly; Groot Drakenstein, *Rogers* 17989; Drakenstein Mts., Devil's Tooth, *Esterhuysen* 9533; west entrance to Du Toit's Kloof, *Pillans* 8396, 8397, 8398, 8428; Hercules Pillar, *Compton* 13659, *Pillans* 9996, *Salter* 5718, *Esterhuysen* 16014.—PIKETBERG DIV.: Piketberg, *Schlechter* 5211; plateau on the Piketberg, *Pillans* 7382; Zebra Kop, *Pillans* 7504; Mouton's Vlei, *Pillans* 7171; near "Goedverwacht," *Bolus* 8424; hills near Porterville, *Schlechter* 10719; Saron, *L. Bolus* in Bolus Herb. 16290, *Levy's* 5673; "The Rest," *Gillett* 3744.—PORT ELIZABETH DIV.: near Port Elizabeth, *Kemsley* 96, *Long* 205, *Trash* 8, 9; near Parkin's Vlei, *Holland* 3745; Burchell's Valley, *Kensit* in Bolus Herb. 6377; Walmer, *Paterson* 2373; Aloes, *I. L. Drège* 3022; Redhouse, *Paterson* 1131.—PRINCE ALBERT DIV.: between Prince Albert and Klaarstrom, "Eiker Kraal," *Leipoldt* in Bolus Herb. 23979.—RIVERSDALE DIV.: Garcia's Pass, *Burchell* 7022, *Bolus* 11241, *Schlechter* 1732; Albertinia, *Rogers* 16702, *Salter* 6910; Oude Tuin, *Muir* 1775; hills near Riversdale, *Muir* 2404, 3244, 4456.—STELLENBOSCH DIV.: Kraaifontein, *Compton* 4848; sandy flats north of Kanonberg, Brakenfel, *Acocks* 2282; Gordon's Bay, *Bolus* 9932 (type of *A. gustrowensis* in Bolus Herb.); Sir Lowry's Pass, *Schlechter* 1134, *Barker* 1730, *Compton* 13496, *Parker* 4146, 4290, 4357.—SWELLENDAAM DIV.: Swellendam, *Ecklon and Zeyher* 916 (cotypes of *A. cymnoides* in Lund, S. Afr. Mus. Herb. and Stockholm).—TULBAGH DIV.: Tulbagh, *L. Bolus* in Bolus Herb. 14019; Winterhoek, *Bolus*

5326, *Ecklon and Zeyher* 915 (cotypes of *A. platypetala* in S. Afr. Mus. and Stockholm), *Stokoe* 8278; near Tulbagh Waterfall, *Bolus* 5315, *Drège* 7107, *Ecklon and Zeyher* 911, 914 (cotypes of *A. chortophila* in Lund, National Herb., S. Afr. Mus. and Stockholm), *Lamb* 2196, *Hutchinson* 404; Roodesand Berg, *Compton* 6561, 6562; Great Winterhoek, *Drège* 7102 (type of *A. juniperina* in Stockholm, cotype in Kew Herb.); Ontongsborg, *Isaac* in *Bolus* Herb. 23977.—UITENHAGE DIV.: Van Staadens, *Paterson* 170, 811, 2345, *Galpin* 3869, *Ecklon* 203, *Ecklon and Zeyher* 901 (cotype of *A. geminifolia* in S. Afr. Mus. Herb.), *Drège* 7109; between Krakakama and Van Staadens, *Ecklon and Zeyher* 905 (cotypes of *A. ericoides* in S. Afr. Mus. and Stockholm); near Coega River, *Grasrug*, *Ecklon and Zeyher* 912 (cotypes of *A. decumbens* in Kew Herb., National Herb., S. Afr. Mus. Herb. and Stockholm); Bethelsdorp, *Paterson* 171; Winterhoek, *Fries*, *Norlindh and Weimarck* 1180.—UNIONDALE DIV.: hills at Uniondale, *Esterhuysen* 16412; Joubertina, *Esterhuysen* 6854, 10626, 13641, 16373; Kouga Mts., *Esterhuysen* 10794; Haarlem, *Burchell* 5023, *Schönland* 3102; Long Kloof, *Ecklon and Zeyher* 918 (cotypes of *A. fastigiata* in S. Afr. Mus. Herb. and Stockholm); mountains near Avontuur, *Marloth* 10943; headwaters of Wagenbooms River, *Fourcade* 2387; Mannetjiesberg, *Esterhuysen* 6430, 6489; Hoopsberg, *Esterhuysen* 6586; Misgund Hills, *Esterhuysen* 6945; Slypsteenberg, *Esterhuysen* 6307; Kamanasieberg, *Bolus* 2281, *Esterhuysen* 16446.—WILLOWMORE DIV.: Aasvogelberg, summit, *Marloth* 14159; Blydeberg, *Andreae* 941.—WORCESTER DIV.: Du Toit's Kloof, *Drège* 7108, *Esterhuysen* 9699a; north entrance to Du Toit's Kloof, *Barker* 4823; Bain's Kloof, *Compton* 8136, *Schlechter* 9128, 9199; Slanghoek Mt., *Wasserfall* 620; Bailey's Peak, *Esterhuysen* 1615, 8279, 8519; Witte River Valley, *Esterhuysen* in *Bolus* Herb. 23978; between Seven Sisters and Krom River Dome, Zuurvlaakte, *Esterhuysen* 12321; Wilde Paardeberg, *Stokoe* 2523; Roman's River, *Leighton* 2187; Waaihoek Mts., *Esterhuysen* 8292, 14838; Keeromsberg, *Esterhuysen* 9181, 9185; Hex River, *Tyson* 657; north-east slope of Prospect Peak, *Esterhuysen* 15903, 15925; Kavadouws Mts., *Esterhuysen* 10314, 10920; Bonteberg, Eikenbosch Hoek, *Esterhuysen* 3648, *Compton* 3764, 9926; Tweedside Mt., *Marloth* 10823; Witteberg, *Compton* 2694, 3324, 5910, 5911, 7958, 12125, 12163, 13955, 15208, 21124, *Leighton* 207.

Flowering Jan.—Dec. Probably the most widely distributed and most polymorphic species. Extreme forms differ so greatly in superficial appearance that they seem to be quite distinct species, but they are all connected by intermediate forms, and they possess certain characters common to all. Varietal groups cannot be maintained. In the north and north-east areas of distribution the leaves are mostly shorter, relatively wider, more compressed dorsally, more obtuse and more often

puberulous than in other forms, and the sepals are mostly shorter and more obtuse. In the eastern areas the leaves are narrower and relatively longer, the sepals more tapering and the glands smaller than in other forms. The form confined to the sandy flats in the extreme south-west connects the south coast form with the inland forms. A reduction in the number of carpels from 3 to 2 occurs in most plants of the south coast form and sometimes in the eastern form. Precise knowledge of the identity of Linne's *Hartogia capensis* is not available for present use, but it seems certain, from his description and Dümmer's definite statement, made after seeing the Linnean Collection, in regard to its identity, that the typical form is included in the above description.

104. **A. glabrata** Bartl. and Wendl. *Diosm.* 165 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 437 (1860) excl. var. *Eckloniana*; Dümmer in *Fed. Rep.* xi, 423 (1912) incl. var. *paradoxa*; Walgate in *Fl. Cape Peninsula* 541 (1950). **A. thyoides** G. Don, *Gen. Syst.* i, 787 (1831). **A. erecta** var. **glaberrima** Schldl. in *Linnaea* vi, 204 (1831)! **Hartogia glabrata** O. Kze. *Rev. Gen.* i, 101 (1891). **Agathosma multicaulis** Dümmer l. c.!

Branchlets glabrous, hispidulous or rarely pubescent. Leaves 3·5—7 mm. long, alternate, ascending, lanceolate or ovate-lanceolate, obtuse and navicular at the apex, rounded at the base, concave above, rounded and sometimes nerve-keeled beneath, with scattered glands, glabrous, ciliate at the base or with a few hairs above on the lower half. Flowers in terminal clusters. Peduncles 0·7—1·2 cm. long, glabrous, hispidulous or pubescent, with bracteoles on the lower half. Sepals 1·5—2 mm. long, ovate or ovate-lanceolate, obtuse or subacute, obtusely keeled, ciliate, sometimes sparsely pubescent beneath on the lower half, or pubescent above. Petals 3—4·5 mm. long; blade obovate or rotund; claw as long or almost so, narrowly linear or subfiliform, glabrous or ciliate. Stamens glabrous. Stamines 2—3·5 mm. long, oblanceolate- or linear-oblong, obtuse, with a gland behind the apex, tapering and ciliate towards the base. Ovary glabrous, with 2 or rarely 3 carpels bearing rotund processes. Style glabrous.

CAPE DIV.: Duikervlei and Doornhoogte, *Ecklon and Zeyher* 909 partly, 910; Cape Flats, *Niven* (cotype of *A. multicaulis* in Kew Herb.), *Zeyher* 298 partly; near Vygerkraal, *W. Dod* 1867, *Pillans* 1906, 2134; Rondebosch Flats, *Bolus* 7003; Claremont Flats, *Guthrie* 657; Retreat, "Bergvleit," *Burchell* 248, *Walgate* 60, *Zeyher* 1169; hills near Simons-town, *Schlechter* 1073.—MALMESBURY DIV.: Hopefield, *Bolus* 12638 (type of var. *paradoxa* in Bolus Herb.).

Flowering July—Dec.

105. **A. corymbosa** G. Don, *Gen. Syst.* i, 789 (1831). **Diosma corym-**

bosa Montin in *Phys. Sallsk. Handl.* i, 106 (1776). **D. pubescens** Thunb. *Prodr.* 43 (1794); *ej. Diss. Diosm.* 18 (1797) excl. syn. omn.; *Willd. Sp. Pl.* i, 1138 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Thunb. Fl. Cap. ed. Schultes* 225 (1823). **D. hirta** Vent. *Malm. t.* 72 (1803) excl. syn. Lam.; *Ait. Hort. Kew ed.* 2, ii, 30 (1811); *Poir. Encycl. Meth. Suppl.* ii, 484 (1812); *Ker-Gawl. in Edwards' Bot. Reg. t.* 369 (1819); *Lam. Illus. t.* 127, f. 3 (1823); *Lodd. Bot. Cab.* 1122 (1826). **Bucco villosa** Wendl. *Collect.* i, 14, t. 2 (1805); *Roem. and Schultes, Syst. Veg.* v, 438 (1819). **Agathosma villosa** Willd. *Enum. Hort. Berol.* 259 (1809); *Link, Enum. Hort. Berol.* i, 238 (1821); *Barthl. and Wendl. Diosm.* 163 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 426 (1860); *Wildeman, Hort. Then.* t. 4 (1899); *Dümmer in Fed. Rep.* xi, 412 (1912). **Bucco Ventenatiana** Roem. and Schultes, *Syst. Veg.* v, 442 (1819). **Agathosma Ventenatiana** Barthl. and Wendl. *Diosm.* 161 (1824). **A. laxa** Barthl. and Wendl. *Diosm.* 162. **Diosma rugosa** Hort. Angl. ex Barthl. and Wendl. *Diosm.* 162. **D. purpurea**, **D. rubra** Hort. ex Barthl. and Wendl. *Diosm.* 163. **D. Wendlandiana** DC. *Prodr.* i, 715 (1824). **Agathosma pubescens** G. Don, *Gen. Syst.* i, 788 (1831). **Hartogia villosa**, **H. Ventenatiana** O. Kze. *Rev. Gen.* i, 102 (1891).

A low shrub with pubescent branchlets. Leaves 4—7 mm. long, alternate, ascending or erect-spreading, lanceolate, obtuse or subacute, often laterally compressed at the apex, rounded at the base, slightly incurved towards the apex, concave and glabrous above, obtusely keeled and $\pm$ pubescent or pilose beneath, sometimes only on the keel and margin. Flowers in terminal clusters. Peduncles mostly 5—6 mm. long, villous, usually purple, with bracteoles on the lower half. Sepals 2.5—3 mm. long, lanceolate or ovate-lanceolate, subacute, sparsely pubescent above, obtusely keeled and $\pm$ pubescent or villous beneath, rarely glabrous, conspicuously membranous at the margin. Petals 4—5 mm. long; blade obovate, rounded at the apex, sometimes with a few hairs above; claw almost as long, narrowly linear, glabrous. Stamens glabrous. Staminodes 3.5—4.5 mm. long, linear, obtuse, with a gland behind the apex, tapering towards the base, villous shortly below the middle. Ovary glabrous, with 2 carpels bearing oblong processes. Style glabrous.

CAPE DIV.: without precise locality, *Cooper* 2152; between Paarden Eiland, Blaauwberg and Tigerberg, *Drège* 7090; Lion's Rump, above Green Point, *Drège* 9093; Duiker Vlei and Doornhoogte, *Ecklon and Zeyher* 907; near Cape Town, *Zeyher* 298 partly; sandy flats near Bellville, *MacOwan* 2750, in Herb. Norm. Austr.-Afr. 711; Cape Flats, *Bolus* 4422, *Marloth* 476, *Salter* in *Bolus Herb.* 23993; flats east of Blaauwberg, *Compton* 15864, 18114, *Leighton* 564, 1755; flats at south base of the Tigerberg, *Levyms* 2026, *Pillans* 4765; Doornhoogte, *W. Dod.* 1865.—MALMESBURY DIV.: 3 miles east of Mamre Road Station, *Hutchinson*

206, *Salter* 6868, *Walgate* 48, flats south of Mamre, *Thorne* in S. Afr. Mus. Herb. 53121.

Flowering May—Oct. The conspicuous membranous margins of the sepals serve to distinguish this species from all allies.

106. **A. microcalyx** *Dümmer* in *Fed. Rep.* xi, 418 (1912)!

Branchlets puberulous. Leaves 3—6 mm. long, alternate, erect-spreading or spreading, slightly recurved, linear, usually slightly widened in the upper half, obtuse, rounded at the base, slightly concave above, $\pm$ gland-crenate, obtusely keeled and bisulcate beneath, entirely hispidulous. Flowers in terminal clusters, or the lower often axillary. Peduncles 4—5 mm. long, hispidulous, with bracteoles at or shortly below the middle. Sepals 0.75 mm. long, deltoid-ovate, subacute or obtuse, rounded and hispidulous beneath. Petals 3.5—3.75 mm. long, glabrous; blade rotund-ovate, very obtuse; claw $1\frac{1}{2}$ — $1\frac{3}{4}$ times as long, very slender. Stamens glabrous. Staminodes 1.75 mm. long, lanceolate, gland-tipped, cuneate at the base, pubescent above. Ovary glabrous, with 3 carpels bearing subquadrate retuse processes. Style glabrous.

CALVINIA DIV.: Bokkeveld, *Leipoldt* 855; between Nieuwoudtville and Oorlogs Kloof, *Leipoldt* 3718.—CLANWILLIAM DIV.: Blaauwberg, *Schlechter* 8436 (cotypes in Albany Mus., Bolus Herb., Kew Herb., National Herb. and Stockholm); Pakhuis Mt., *Schlechter* 10795.

Flowering Aug., Sept. The affinity is with *A. bisulca*, from which it is distinguished by shorter and more spreading leaves and by the lanceolate staminodes.

107. **A. bisulca** *Bartl. and Wendl. f. Diosm.* 129 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 429 (1860); *Dümmer* in *Fed. Rep.* xi, 412 (1912). **Diosma bisulca** *Thunb. Prodr.* 84 (1794); *ej. Diss. Diosm.* 8 (1797); [**D. bifurca** (error typograph.) *Willd. Sp. Pl.* i, 1136 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Roem. and Schultes, Syst. Veg.* v. 454 (1819); *Thunb. Fl. Cap. ed. Schultes* 222 (1823); *Spreng. Syst. Veg.* i, 786 (1825). **Agathosma glauca** *Eckl. and Zeyher, Enum.* 112 (1835)!. **A. barosmaefolia** *Eckl. and Zeyher, Enum.* 111!; *Bartl. in Linnaea* xvii, 378 (1843); *Sond. op. cit.* 427; *Dümmer op. cit.* 412 incl. var. *angustifolia*. **A. acerosa** *Eckl. and Zeyher, Enum.* 114!; *Sond. op. cit.* 428; *Dümmer op. cit.* 412. **A. Leipoldtii** *Dümmer op. cit.* 416! **Hartogia acerosa**, **H. barosmifolia**, **H. bisulca** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets puberulous or rarely glabrous. Leaves mostly 1—2.5 cm. long, alternate, erect-spreading, linear, oblanceolate-linear or oblanceolate-oblong or acerose, acute, tapering at the base, concave above, rounded-convex or slightly keeled beneath, often bisulcate beneath,

glabrous or puberulous above and beneath, sometimes with hairs at the apex, with scattered glands beneath. Flowers in terminal clusters or the lower axillary, often in small axillary racemes associated in panicles. Peduncles 5—8 mm. long, puberulous or glabrous, with two bracteoles on the lower half. Sepals 1.5 mm. long, ovate, acute to very obtuse, obtusely keeled beneath on the upper half, membranous at the margin, puberulous or glabrous, sometimes ciliolate. Petals 5—6 mm. long; blade widely ovate, elliptic or rotund, obtuse, sometimes sparsely pubescent above and beneath at the middle; claw as long to twice as long, subfiliform, sometimes pubescent near the base. Stamens glabrous. Staminodes about 3.5 mm. long, oblanceolate in the upper half and very slender in the lower half, or linear, obtuse and usually slightly retuse, $\pm$ pubescent or villous above, with a gland behind the apex. Ovary glabrous, or hispidulous on the upper half, with 2, 3 or rarely 4 carpels bearing rotund glabrous or pubescent processes. Style glabrous or sparsely pubescent. Fruit studded with glands.

CALVINIA DIV.: Nieuwoudtville, *Leipoldt* 877, in Bolus Herb. 9392 (type of *A. Leipoldtii*, cotype in Kew Herb.).—CERES DIV.: east slopes of Olifants River Mts., south of Groen, *Esterhuysen* 13404.—CLANWILLIAM DIV.: flats near Herculesfontein, *Ecklon and Zeyher* 892 (cotypes of *A. acerosa* in Kew Herb., Lund and National Herb.), *Zeyher* 1074; Zeekoe Vlei, *Compton* 11016, *Schlechter* 8492, 8497 (cotypes of var. *angustifolia* in Albany Mus., Bolus Herb. and National Herb.), *Esterhuysen* 5618, *Pillans* 7072, *Gillett* 4061, *Leipoldt* 4317, 4318; hills between Witte Els Kloof and Lambert's Hoek Berg, *Pillans* 9044; Clanwillaim, *Mader* 237; between Graafwater and Clanwilliam, *Lamb* 3566; Olifants River Mts., *Schlechter* 5110; Olifants River Valley, *Leipoldt* in Bolus Herb. 23991; Alpha, *Bond* 1088; Nieuwoudt Pass, *Compton* 5396; "Brakfontein," *Ecklon and Zeyher* 874 (cotypes of *A. barosmaefolia* in Kew Herb., National Herb., S. Afr. Mus. Herb. and Stockholm), *Schlechter* 7978; Giftberg, *Compton* 20805, 20831, *Phillips* in Sladen Mem. Exped. 7533; Pakhuis Pass, *Galpin* 11079, *Leipoldt* in Bolus Herb. 23983; Algeria Forest Station, *Galpin* 10579, *Levyns* 2225, 3003; Uitkomst, *Compton* 6796; Uitkyk, *Compton* 4796, 4806; Nardouw, *Compton* 6993, *Salter* 7538; Cederberg, *Primos* in Marloth Herb. 11688; Sneeuwberg, Duivelsgat, *Esterhuysen* 13139; Middelberg, *Esterhuysen* 7283; Bosch Kloof, *Pocock* 701; Wupperthal, *Leipoldt* 854; "Vogelfontein," *Levyns* 1142; "Kransvlei," *L. Bolus* in Bolus Herb. 23755; between Kromme Rivier and Bergvlei, *Drege* 7100 (type of var. *glabra* in Stockholm); Elands Kloof, *Hafstrom and Acocks* 774; between Bergvlei and Langvlei, *Acocks* 2902; Bergvlei, *Zeyher* 1180, *Ecklon and Zeyher* 875 (cotypes of *A. glauca* in S. Afr. Mus. and Stockholm).—MALMESBURY DIV.: hills near Darling, *Schlechter* 5332;

Hopefield, *Bachmann* 456, *Pattison* in Bolus Herb. 13902, *L. Bolus* in Bolus Herb. 16291, 20932, 20933; Saldanha Bay, *Levyns* 3223.—PIKETBERG DIV.: Piketberg, *Bolus* 7540, 23984, *Guthrie* 2567; near west entrance to Grey's Pass, *Howe* 171; St. Helena Bay, granite hills, *Marloth* 8097; Mouton's Vlei, *Pillans* 7220, 7329, 7330; Paleisheuvel, *Barker* 4787; Sauer, *Barker* 2657.

Flowering July—Dec. The leaves vary in shape with the various soil and climatic conditions of the sandy flats and the foothills of the Cederberg. The wide-leaved form, *A. barosmaefolia*, usually having only 2 carpels, is confined to the inland parts of the Clanwilliam Division.

108. *A. giftbergensis* *Phillips* in *Ann. S. Afr. Mus.* ix, 116 (1913)!

A. rotundipetala *Phillips* *op. cit.* 117!

Branchlets puberulous. Leaves 4—7 mm. long, alternate, erect-spreading or spreading, linear or linear-lanceolate, obtuse, subacute or acute, sometimes apiculate or tipped with a hair, rounded at the base, $\pm$ concave above, rounded and with scattered glands beneath, glabrous or puberulous, or sparsely ciliate at the base. Flowers in terminal clusters. Peduncles about 5 mm. long, glabrous or hispidulous, with bracteoles on the lower half. Sepals 0.75—1 mm. long, ovate or subrotund, obtuse or subacute, rounded beneath, glabrous or ciliate. Petals 3.5—4.5 mm. long; blade elliptic, obovate, obovate-oblong or rotund, very obtuse, glabrous, or pubescent beneath on the nerve; claw from half to equal in length, linear, glabrous or sparsely ciliate. Stamens glabrous. Staminodes 1.5—2 mm. long, linear, lanceolate-linear or linear-lanceolate, gland-tipped, cuneate at the base, concave above, pubescent above and beneath. Ovary glabrous, or sparsely pubescent on the apex, with 3 carpels bearing oblong obtuse processes. Style glabrous.

CLANWILLIAM DIV.: Pakhuis, *Compton* 6857, *Schlechter* 10806, *Esterhuysen* 3129, 3130, 3131, *Pillans* 7088, *Thorne* in *S. Afr. Mus. Herb.* 52695; between Pakhuis and Wupperthal, Bidouw River, Diamond Drift, *Leipoldt* 3715; top of Nieuwoudt Pass, *Acocks* 776, *Esterhuysen* 8132, *Leighton* in Bolus Herb. 21587, *Weintraub* in Bolus Herb. 19484; top of Krakadouw Poort, *Esterhuysen* 12254; top of Uitkyk Pass, Kriedouw Krantz, *Gillett* 4116; Boontjes River, *Leipoldt* in Bolus Herb. 19092.—VAN RHYNSDORP DIV.: Giftberg, *Phillips* in Sladen Mem. Exped. 7536 (type of *A. giftbergensis* in *S. Afr. Mus. Herb.*, cotypes in Albany Mus., Bolus Herb. and National Herb.), 7537 (type of *A. rotundipetala* in *S. Afr. Mus. Herb.*).

Flowering July—Sept.

109. *A. crassifolia* *Sond. in Harv. and Sond. Fl. Cap.* i, 438 (1860)!

A. glabrata *E. Mey. ex C. Muell. in Walp. Ann.* vii, 513 (1869) absque descr. **Hartogia crassifolia** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets glabrous or sparsely pubescent. Leaves 2—8 mm. long, alternate, erect-spreading, linear, oblong or elliptic-oblong, very obtuse, rounded at the base, rather fleshy, glabrous, narrowly or rarely widely concave above, sometimes with small stalked glands on the margin, rounded and with many scattered impressed glands beneath, with a stout petiole long-decurrent below the articulation. Flowers in terminal clusters. Peduncles 3 mm. long, glabrous, with bracteoles on the lower half. Sepals 1.25—1.5 mm. long, ovate, obtuse, glabrous, submembranous and often toothed at the margin, rounded-convex beneath. Petals 4—6 mm. long; blade elliptic-oblong; claw as long or almost so, slender, ciliate near the base. Stamens glabrous. Staminodes 3—4.5 mm. long, linear, tapering to a truncate apex and to the base, pilose at or shortly below the middle. Ovary glabrous, with 3 carpels bearing oblong processes. Style glabrous.

South Africa: without precise locality, *Drège* 7117.—CERES DIV.: Karoo Poort, *Acocks* 779, *Esterhuysen* 5491, *Walgate* 503, *Levyns* 4619, *Compton* 5560, 8912.—CLANWILLIAM DIV.: Krakadouw, *Pocock* 551; Matjesrivier, *Wagener* 271.—LADISMITH DIV.: Seven Weeks Poort *Compton* 7416, *Levyns* 2433.—LAINGSBURG DIV.: Witteberg, *Compton* 7984, 16291; Pieter Meintjes, *Rogers* 16316.—WORCESTER DIV.: Hex River Pass, *Drège* (type of *A. crassifolia* in Stockholm, (cotype in Kew Herb.); De Doorns, *Bolus* 13082; Orchard Siding, *Rogers* 16596.

Flowering June—Nov. The type of *A. glabrata*, collected by *Drège*, is in the Riks. Mus., Stockholm.

110. **A. sedifolia** *Schldl. in Linnaea* vi, 206 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 438 (1860). **Hartogia sedifolia** *O. Kze. Rev. Gen.* i, 102 (1891).

A low shrub with glabrous branchlets. Leaves 6—8 mm. long, alternate, ascending, subimbricate, linear-oblong, sometimes lanceolate-oblong, obtuse, rounded at the base, navicular, obtusely keeled, pilose on the margin and keel. Flowers in terminal clusters. Peduncles 6 mm. long, glabrous, with slender bracteoles near the base. Sepals 3 mm. long, ovate, acute, keeled, thickened at the apex, membranous at the margin, villous-ciliate. Petals 6 mm. long; blade obovate, cucullate at the apex; claw $\frac{1}{2}$ as long, cuneate, pubescent above. Stamens glabrous. Staminodes 3.5 mm. long, linear, attenuate, recurved at the apex, furrowed above, pubescent on the lower half, with a large apical gland. Ovary pilose on the apex, with 3 carpels bearing obovate pilose processes.

BREDASDORP DIV.: hills near Zoutendals Vlei, *Miss H. Joubert* in

Ecklon and Zeyher's Herb. 862 (cotypes in Kew Herb., S. Afr. Mus. Herb. and Stockholm).

111. **A. lancifolia** *Eckl. and Zeyher, Enum.* 109 (1835)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 428 (1860). **Hartogia lancifolia** *O. Kze. Rev. Gen.* i, 101 (1891). **Agathosma pusilla** *Dümmer in Fed. Rep.* xi, 414 (1912)!

Branchlets puberulous. Leaves 0.5—1.3 cm. long, alternate, ascending, lanceolate, subulate-acute or almost so, widely cuneate at the base, concave, scabridous and usually minutely puberulous above, pilose-ciliate, distinctly keeled beneath, often pubescent or pilose on the keel, scabridous and usually minutely puberulous, with impressed scattered glands. Flowers in terminal clusters, or the lower axillary. Peduncles 2.5 mm. long, glabrous, with long slender ciliate bracteoles near the base. Sepals 3—3.5 mm. long, oblong-lanceolate, subacute, concave above, ciliate, rounded beneath, obtusely keeled on the upper half. Petals 6—7 mm. long, glabrous; blade narrowly obovate, obovate or rotund-obovate; claw $2\frac{3}{4}$ —3 times as long, filiform. Stamens glabrous. Staminodes 4—5 mm. long, narrowly linear, often subspathulate at the apex, villous on the lower half, with a large gland behind the apex. Disk with acuminate lobes 1—1.5 mm. long. Ovary pilose on the apex, with 3 carpels bearing ovate pilose processes. Style sparsely hispid or glabrous.

CLANWILLIAM DIV.: hills near the Olifants River, *Ecklon and Zeyher* 857 (cotypes of *A. lancifolia* in S. Afr. Mus. Herb. and Stockholm).—TULBAGH DIV.: hills near TULBAGH KLOOF, *Bolus* 8422.

Flowering Oct. This species is unique in having a disk with acuminate lobes. The type of *A. pusilla* is in Kew Herbarium. It is a small specimen mounted next to the type of *A. mixta*, Drège 7097 from Bathurst Division, and is without information about the locality or collector, though Dümmer records it as "*Drège* 7097 partly."

112. **A. Joubertiana** *Schldl. in Linnaea* vi, 207 (1830); *Sond. in Harv. and Sond. Fl. Cap.* i, 430 (1860). **Hartogia Joubertiana** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets pubescent. Leaves 5—8 mm. long, alternate, ascending, subimbricate, linear-lanceolate, acute, rounded at the base, slightly incurved towards the apex, concave and glabrous above, pilose-ciliate, convex and obtusely keeled beneath, slightly thickened behind the apex, pilose on the keel, with glands almost confined to the keel and margin. Flowers in terminal clusters. Peduncles 6—7 mm. long, puberulous, with slender hair-tipped bracteoles on the lower half. Sepals 1.5—1.75 mm. long, lanceolate, subacute, obtusely keeled, glabrous. Petals

4.5 mm. long, glabrous; blade narrowly obovate; claw $\frac{2}{3}$ as long, linear. Stamens glabrous. Staminodes 1.5 mm. long, linear-oblong, attenuate, gland-tipped, tapering towards the base, ciliate at the middle. Ovary pilose-setose on the apex, with 3 carpels bearing rounded processes. Style glabrous.

BREDASDORP DIV.: coast belt near Zoutendalsvlei, *Miss H. Joubert* (Ecklon and Zeyher 868, cotypes in Kew Herb., S. Afr. Mus. Herb. and Stockholm).

This has a close affinity with *A. sedifolia* of which it may be a form.

113. *A. florulenta* Sond. in *Harv. and Sond. Fl. Cap.* i, 437 (1860)!
Hartogia florulenta O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets hispidulous. Leaves 4—6 mm. long, alternate, ascending, subimbricate, lanceolate-oblong, obtuse, tapering shortly at the base, concave and smooth above, slightly swollen behind the apex, with rigid cilia based on marginal glands, obtusely keeled beneath, with glands mostly on the keel. Flowers in terminal clusters. Peduncles 4—5 mm. long, puberulous, with slender bracteoles about the middle. Sepals 1 mm. long, lanceolate, obtuse, obtusely keeled, glabrous. Petals 4 mm. long; blade obovate-oblong, very obtuse; claw half as long, linear, ciliate. Stamens glabrous. Staminodes 2.5 mm. long, oblong-linear, obtuse, slightly widened and shortly ciliate in the lower half, tapering towards the base. Ovary glabrous, with 3 carpels bearing oblong obtuse processes. Style glabrous.

BREDASDORP DIV.: Zoutendals Vlei, *Miss Joubert* (type in Stockholm).

Flowering Oct. This has affinity with *A. Joubertiana* Schldl. and *A. sedifolia* Schldl., from the same locality, and it may be a form of those species.

114. *A. geniculata* sp. nov.; ramulis pubescentibus; foliis alternatis confertis ovatis obtusis, apice incurvis, supra paulum concavis glabris, apice versus crassa costatis; floribus terminalibus; pedunculis glabris bracteolatis; sepalis ovatis vel obovatis, supra concavis, margine hyalinis ciliatis; petalis obovatis, infra medium anguste unguicularibus ciliatis; staminibus infra medium sparse pubescentibus; staminodis supra medium lineari-lanceolatis sparse ciliatis, medium conspicue geniculatis pilosis, infra medium filiformibus sparse ciliatis; ovario 3-loculari, apice piloso, cornubus obovatis; stylo glabro.

A low rather rigid shrublet with rigidly pubescent branchlets. Leaves 4 mm. long, alternate, erect-spreading, very crowded, ovate, obtuse, rounded at the base, incurved at the apex, slightly concave above, with

a raised nerve beneath much swollen in the upper half, with inconspicuous glands on the margin, nerve and sometimes elsewhere beneath, tipped with rigid hairs. Flowers in dense terminal clusters. Peduncles 1 mm. long, glabrous, with linear-oblong ciliate bracteoles at or near the base. Sepals 2.5—3 mm. long, ovate or obovate, rather abruptly narrowing to an obtuse apex, concave above, navicular at the apex, hyaline and ciliate at the margins. Petals 5 mm. long; blade obovate, very obtuse, glabrous; claw $1\frac{1}{2}$ times as long, linear, ciliate. Stamens very sparsely pubescent on the lower half. Staminodes 4 mm. long, linear-lanceolate and sparsely pilose-ciliate in the upper half, distinctly geniculate and densely pilose at the middle, filiform and sparsely ciliate in the lower half. Disk well developed, crenulate. Ovary rigidly pilose on the apex, with 3 carpels bearing obovate processes furrowed and rigidly pilose on the inner face. Style glabrous.

BREDASDORP DIV.: a mile east of Agulhas, *Salter* 4137 (type, in Bolus Herb.).—CALEDON DIV.: Gansbaai, *Walgate* in Bolus Herb. 24438.

Flowering Dec. The affinity is with *A. serpyllacea* Licht., particularly with the forms having similar leaves; but the bracteoles are basal, the staminodes have a distinct knee at the middle, and the processes on the carpels are obovate.

115. *A. imbricata* Willd. *Enum. Hort. Berol.* 259 (1809); *Link, Enum. Hort. Berol.* i, 238 (1821); *Bartl. and Wendl. Diosm.* 144 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 418 (1860); *Engl. in Engl. and Prantl. Pflanzenfam.* iii, §4, p. 151 (1896); *Dümmer in Fed. Rep.* xi, 404 (1912); *Walgate in Fl. Cape Peninsula* 540 (1950). *Hartogia ciliata* Berg. *Pl. Cap.* 68 (1767) excl. syn. omn. *H. imbricata* Linn. *Mant.* 124 (1767). *Diosma imbricata* Linn. *Syst. Veg.* ed. 14, p. 239 (1784); *Lam. Encycl. Meth.* ii, 287 (1786); *Ait. Hort. Kew.* ed. 1, i, 275 (1789); *Thunb. Prodr.* 43 (1794); *ej. Diss. Diosm.* 5 (1797); *Murr. Syst. Veg.* 250 (1797); *Willd. Sp. Pl.* i, 1137 (1798); *Pers. Syn. Pl.* i, 247 (1805); *Ait. Hort. Kew.* ed. 2, ii, 31 (1811); *DC. Prodr.* i, 715 (1824); *Spreng. Syst. Veg.* i, 787 (1825). *Bucco imbricata* Wendl. *Collect.* i, 33, t. 9 (1805); *Roem. and Schultes, Syst. Veg.* v, 439 (1819). *B. acuminata* Wendl. *Collect.* i, t. 28; *Roem. and Schultes, Syst. Veg.* v, 440. *Agathosma acuminata* Willd. *Enum. Hort. Berol.* 260 (1809); *Bartl. and Wendl. Diosm.* 147, excl. syn. *Pluk. Bucco obtusata* Wendl. *Collect.* iii, 7, t. 76 (1819); *Roem. and Schultes, Syst. Veg.* v, 444 (1819). *B. vestita* Roem. and Schultes *op. cit.* 447. *Diosma lycopodioides* Willd. ex Roem. and Schultes *op. cit.* 461. *Agathosma lycopodioides* Bartl. and Wendl. *Diosm.* 148 (1824); *Sond. op. cit.* 418; *Dümmer in Fed. Rep.* xi, 404, incl. var. *trichostyla*. *A. obtusata* G. Don, *Gen. Syst.* i, 789 (1831). *A. polyphylla* Presl, *Bot. Bemerk.* 32 (1844) absque descr. *Har-*

togia lycopodioides O. Kze. *Rev. Gen.* i, 101 (1891). **Agathosma Lambii** Dümmer *op. cit.* 405! **A. pseudoimbricata** Dümmer *op. cit.* 406! **A. gracilipetala** Dümmer in *Ann. Bolus. Herb.* iii, 60 (1920)!

A low usually much branched shrub. Branchlets glabrous, $\pm$ pubescent or pilose. Leaves 2.5—5 mm. long, alternate, ascending, erect-spreading or spreading, often subimbricate, sometimes imbricate, linear-lanceolate, lanceolate, ovate-lanceolate ovate or subrotund, acute or subacute, sometimes acuminate, rounded or subcordate at the base, $\pm$ concave and glabrous above, ciliate and $\pm$ keeled, at least on the upper half, $\pm$ pubescent or glabrous beneath. Flowers in terminal clusters, the lower sometimes axillary. Peduncles 2—4 mm. long, glabrous, sparsely pilose or pubescent, with bracteoles on the lower half. Sepals 2—2.5 mm. long, ovate-lanceolate, oblong, ovate-oblong, elliptic or ovate, subacute or obtuse, sometimes membranous at the margin, ciliate, convex and glabrous, puberulous or pubescent beneath, keeled behind the apex. Petals 4—7.5 mm. long; blade rotund, widely ovate or widely obovate; claw 2—2½ times as long, subfiliform, pilose-ciliate on the lower half. Stamens sparsely ciliate near the base. Staminodes 3—4.5 mm. long, spatulate or oblong, very obtuse, tapering to a slender base, pilose-ciliate on the upper half, usually with a gland behind the apex. Ovary glandular and pilose on the upper half, with 3 carpels bearing oblong pilose processes. Style glabrous, or sparsely pilose on the lower half.

South Africa: without precise locality, *Drège* 7127, *Sieber* 192, *Thom* 804, *Schlechter* 9922 partly (type of *A. pseudoimbricata* in Kew Herb.).—BREDASDORF DIV.: limestone near Struis Bay, *Esterhuysen* 7622, *Hafstrom* and *Acocks* 2173; margin of salt pan north-west of The Poort, *Acocks* 1759; Frikkie's Bay, *Compton* 18189; Elim, *Bolus* 6781, 6782, *Compton* 9089, 19024; "Blauwfontein," *Smith* 4998; between Baard-scheerbosch and Elim, *Esterhuysen* 2580; between Bredasdorp and Elim, *Esterhuysen* 3100; The Poort, *Compton* 2481, *Walgate* in *Bolus Herb.* 23960.—CALEDON DIV.: hills near Caledon, *Bolus* 9152 (type of *A. gracilipetala* in *Bolus Herb.*, cotype in Albany Mus.); Zondags Kloof, *Walgate* 83; near Stanford, *Stokoe* in *Bolus Herb.* 23969; Klein River Mts., *Stokoe* 8306; Hermanus, *Barker* 1720, *Bolus* 9864, *Galpin* 3873 Rooi Els, *Esterhuysen* 14123; Palmiet River, *Schlechter* 5426, *Stokoe* 8274; Hawston, *Schlechter* 9479; Houwhoek, *Schlechter* 9407, 9407a; Aries Kraal, *Compton* 16467; "Highlands," *Compton* 12251; Kleinmond, *Compton* 12376; near Palmiet River Mouth, *Compton* 14130, *Gillett* 4218, *Stokoe* 9152.—CAPE DIV.: vicinity of Cape Town, *Burchell* 444; Table Mt., *Bolus* 13390, *Burchell* 611; Bishopscourt, *Compton* 10034; between Cape Town and Stellenbosch, *Burchell* 8369; Cape Flats, *Ecklon* and

Zeyher 298, 870; flats east of Claremont, *Dümmer* 826; flats near the Blaauwberg, *Ecklon* 242, *Zeyher* 299; "Kirstenbosch," *Adamson* in S. Afr. Mus. Herb. 39022, *Compton* 7666; flats near Wynberg, *Bolus* 2742; above Camp's Bay, *Galpin* 3876; Devil's Peak, *Rehmann* 1157; Constantia Nek, *Wall* 1698/10; between "Kirstenbosch" and Constantia Nek, mountain top, *Esterhuysen* 1293; Wynberg Hill, *Pillans* 8978; "Cecilia," *Compton* 18667; summit of the Muizenberg, *MacOwan* in Herb. Norm. Austr.-Afr. 206; Fish Hoek, *Page* in *Bolus* Herb. 23962; Simonsberg, *W. Dod* 750; Menskop, *Walgate* 6; Rooihoogete, *Walgate* 7; Vlakkeberg, *Walgate* 65; Swartkop, *Esterhuysen* 12986, *Walgate* 8, 16; Silvermine Valley, *Compton* 16631, *Esterhuysen* 1766, 1779; Witsand, *Penfold* 266, *Salter* 6388; Faroe Kop, *Walgate* in *Bolus* Herb. 23959; Hout Bay, *Pillans* 8977; Clovelly, *Walgate* 13; Constantiaberg, *Compton* 8228, Noordhoek, *Wasserfall* 665; plateau west of Simonstown, *Compton* 19419; near Simonstown, *MacGillivray* 624; summit of Pauls Berg, *Pillans* 8976; Cape Point, *Walgate* 14; Smitswinkel, *Compton* 5988, 8711.—MALMESBURY DIV.: dunes near Saldanha Bay, *Drège*, *Foley* in Natal Herb. 20140; near Bok Point, *Compton* 9419; Mamre Road, *Barker* 1083; near Mamre, *Bolus* 4261, *Walgate* 11; Geelbek, *Pole Evans* 4424; Constable Hill, *MacNae* 1074; between Bokbaai and Darling, *Compton* 21223, *Esterhuysen* 3831; Langebaan, rock-crevices, *Pillans* 6697; "Klipfontein," *Zeyher* in S. Afr. Mus. Herb. 14477.—MOSSEL BAY DIV.: Mossel Bay, *Moran* in *Bolus* Herb. 23963; between Mossel Bay and Sandrivier, *Burchell* 6320 (type of *A. Lambii* in Kew Herb.).—STELLENBOSCH DIV.: Gordon's Bay, *Bolus* 8082; Brackenfel, *Bond* 720, *Esterhuysen* 4059.—TULBAGH DIV.: mountain slopes near Tulbagh, *Ecklon and Zeyher* 869; Winterhoek Mt., *Ecklon and Zeyher* 871, *Drège* 7095.

Flowering Aug.—Febr. The great variation in the shape of the leaves is a remarkable feature of this species. The variations with characters most diverse from those of the typical form occur in the coastal areas where the soil is alkaline.

116. ***A. juniperifolia*** *Barthl. in Linnaea* xvii, 376 (1843)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 428 (1860). ***Hartogia juniperifolia*** *O. Kze. Rev. Gen.* i, 101 (1891). ***Agathosma alta*** *Phillips in Ann. S. Afr. Mus.* ix, 340 (1917)! ***A. Dummeri*** *Phillips op. cit.* 341!

A comparatively tall shrub up to 2.4 m. high, with puberulous pubescent or rarely glabrous branchlets. Leaves 0.6—1 cm. long, alternate, erect-spreading, linear-lanceolate or lanceolate-linear, subacute, rounded at the base, concave or rarely almost flat above, slightly convex and usually nerve-keeled beneath, with glands mostly in rows at the margin and near the nerve, often pilose on the margin nerve and

apex. Flowers in terminal clusters. Peduncles 4—6 mm. long, glabrous or pubescent or with small stalked glands, with slender bracteoles on the lower half. Sepals 1—1.5 mm. long, ovate or subrotund, sometimes shortly tapered, obtuse, obtusely keeled, glabrous, rarely ciliate, or with stalked glands on the upper margin. Petals 3.5—6 mm. long; blade obovate or elliptic-oblong, very obtuse, with a gland behind the apex; claw $\frac{1}{2}$ as long, linear, ciliolate or glabrous. Stamens glabrous. Staminodes 2—6.5 mm. long, linear in the upper half, obtuse, sometimes widened at the apex, with a gland behind the apex, tapering in the lower half, ciliate on the lower half or almost to the apex. Ovary with 2 carpels bearing oblong processes sometimes with long hairs on the apex. Style glabrous.

South Africa: without precise locality, *Guenzius* (cotype of *A. juniperifolia* in Stockholm).—CALEDON DIV.: hills near Bot River, *Bolus* 5465; mountains near Rivier Zonder Einde, *Stokoe* 8290, *A. Wilman* 517; Hottentots Holland Mts., north of Sir Lowry's Pass, *Hutchinson* 357.—CERES DIV.: Mostertsberg, *Schlechter* 396 (possibly a doubtful record).—CLANWILLIAM DIV.: Cederberg, Sneeuwberg, Duivelsgat, *Esterhuysen* 13138.—PAARL DIV.: French Hoek, above Kriel's Farm, *Phillips* 1084 (type of *A. Dümmeri* in S. Afr. Mus. Herb.; French Hoek, *Bolus* in Guthrie Herb. 4024, 4025, *Phillips* 1083 (type of *A. alta* in S. Afr. Mus. Herb.); French Hoek Forest Reserve, *Compton* 5782, 5783, 13868, *Isaac* in *Bolus* Herb. 23986, *Walgate* in *Bolus* Herb. 23985, *Esterhuysen* 7913, *Salter* 6996, 6999; Banhoek, *Esterhuysen* 1778; Wemmershoek, *Esterhuysen* 4036.—STELLENBOSCH DIV.: Jonker's Hoek, *Garside* 193, *Pillans* in *Bolus* Herb. 18724; Diepgat Kloof, *Esterhuysen* 16731; west base of Moordenaars Kop, *Esterhuysen* 17383.

Flowering June—Dec. A form in the Caledon Division approaches nearly to a form of *A. imbricata* but can be distinguished by the proportionately shorter claws of the petals.

117. *A. alaris* Cham. in *Linnaea* v, 53 (1830)!; *Sond. in Harv. and Sond. Fl. Cap.* i, 404 (1860). *Hartogia alaris* O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets sparsely puberulous, somewhat resinous. Leaves 4—7 mm. long, alternate, ascending, subimbricate, lanceolate or ovate, obtuse, rounded or subcordate at the base, slightly concave and minutely tuberculate-scabrid above, convex and with a distinctly raised nerve beneath, tuberculate-scabrid and with small glandular hairs, at first slightly resinous. Flowers in terminal clusters. Peduncles 1.5 mm. long, scabrid, slightly resinous, with linear bracteoles on the lower half. Sepals 1.5 mm. long, ovate or elliptic-oblong, villous-ciliate, convex and slightly scabrid beneath. Petals 4 mm. long; blade obovate or oblong-obovate;

claw $\frac{2}{3}$ as long, linear, ciliate. Stamens with filaments sparsely pubescent on the lower half. Staminodes 1.5 mm. long, linear, tapering in the lower half, densely villous on the upper half, with a large apical gland. Ovary tubercled on the apex, with 3 carpels bearing rounded processes. Style glabrous.

KNYSNA DIV.: Plettenberg Bay, *Mund and Maire* (cotype in Riks. Mus., Stockholm).

A distinct species remarkable for the resinous surface of the young branchlets and leaves.

118. **A. asperifolia** *Eckl. and Zeyher, Enum.* 111 (1835)!; *Bartling in Linnaea* xvii, 379 (1843); *Sond. in Harv. and Sond. Fl. Cap.* i, 463 (1860) *Dümmer in Fed. Rep.* xi, 422 (1912). **Hartogia asperifolia** *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets pubescent or pilose. Leaves 3—6 mm. long, alternate, erect-spreading, lanceolate, obtuse, somewhat cordate or rounded at the base, concave above, glandular and bluntly keeled beneath, with bristle-tipped tubercles above and beneath. Flowers in terminal clusters. Peduncles 1—1.5 mm. long, hispid, with bracteoles on the upper half. Sepals 2 mm. long, lanceolate-ovate, obtuse, ciliate, bluntly keeled and hispidulous beneath. Petals 3.5—4.5 mm. long, glabrous, with a rotund or obovate gland-tipped blade and a slender claw $2\frac{1}{2}$ —3 times as long. Stamens glabrous. Staminodes 2.5 mm. long, linear obtuse in the upper half, tapering to a slender base, villous on the lower half, tipped with a large gland. Ovary with 3 carpels bearing oblong pilose processes. Style for the most part pilose.

CLANWILLIAM DIV.: Elands Kloof, *Esterhuysen* 3128, 3963, *Bond* 712; Warm Baths, *Compton* 5366, *Stephens and Glover* in Sladen Mem. Exped. 7736; Uitkyk Pass, *Compton* 5334; Zuurvleiberg, *Esterhuysen* 2549; Schimmelberg, *Pillans* 9091.—PIKETBERG DIV.: between Nieuwekloof and Elands Kloof, "Bergplaas," *Drège* 7112; west entrance to Grey's Pass, *Gillett* 3739.—TULBAGH DIV.: near Tulbagh Waterfall, *Ecklon and Zeyher* 872 (cotypes in Bolus Herb., Kew, Lund, National Herb., S. Afr. Mus. Herb., Stockholm); Ontongsberg, *Isaac* in Bolus Herb. 23976; Tulbagh Waterfall, *Compton* 12436.

Flowering Sept.—March.

119. **A. salina** *Eckl. and Zeyher, Enum.* 111 (1835)! *absque descr.*

Branchlets pubescent. Leaves 2.5—3.5 mm. long, alternate, erect-spreading, crowded, oblong-lanceolate, obtuse, rounded at the base, concave and shortly pilose above, rounded, with large glands and hair-tipped tubercles beneath. Flowers in terminal clusters. Peduncles 0.5

mm. long, scabridous, with filiform bracteoles at the apex, subtended by spatulate membranous ciliate bracts. Sepals 1.75–2 mm. long, oblanceolate-linear, obtuse, flat, thin, ciliate. Petals 3.5–4 mm. long; blade oblanceolate, obtuse; claw as long, linear, ciliate. Stamens glabrous. Staminodes 2.5 mm. long, linear, widened and ciliate at the middle, tapering towards both ends. Ovary glabrous, with 3 carpels rounded above, without processes. Style glabrous.

CLANWILLIAM DIV.: stony places near Brakfontein, *Ecklon and Zeyher* 873 (cotypes in S. Afr. Mus. and Stockholm).

Flowering August. Sonder included a portion of Ecklon and Zeyher's 873 under *A. asperifolia* but did not mention Brakfontein as a locality, yet he had material in his herbarium labelled as coming from there.

120. *A. leptospermoides* Sond. in *Harv. and Sond. Fl. Cap.* i, 405, (1860)!; *Engl. in Engl. and Prantl, Pflanzenfam.* iii, §4, p. 150 (1896). *A. apiculata* E. Mey. in *Drège, Zwei Pfl. Doc.* 115 (1844) absque descr. *Hartogia leptospermoides* O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets pubescent. Leaves 7 mm. long, alternate, erect-spreading, ovate, acute or obtuse, rounded or subcordate at the base, concave and scabridous above, navicular at the apex, spreading at the margin, gibbous behind the apex, conspicuously nerve-keeled and scabridous beneath, villous on the margin and on the keel. Flowers in terminal clusters situated laterally or at the forking of the stems. Peduncles tomentose, subtended by oblong ciliate bracteoles. Sepals 1.75 mm. long, ovate-oblong, obtuse, navicular, membranous at the margin, ciliate, $\pm$ puberulous above and beneath, rounded and with many impressed glands beneath. Petals 4.5 mm. long; blade elliptic or obovate, obtuse, villous above on the nerve; claw as long or slightly longer, narrowly linear, villous-ciliate. Stamens with villous filaments. Staminodes 4–4.75 mm. long, narrowly linear, acuminate, tipped with a small gland, villous on the middle part. Disk conspicuous, toothed at the margin. Ovary villous on the apex, with 3 carpels bearing rotund pilose processes.

CALEDON DIV.: mountains north of Genadendal, *Burchell* 7859, *Drège* (type, in Stockholm, cotype in S. Afr. Mus. Herb.).—ROBERTSON DIV.: Poesjenets River, *Levy's* 5479.

Flowering Febr., April and Oct. This and *A. roodebergensis* are the two species characterised by the inflorescences being lateral and at the forking of the stems.

121. *A. roodebergensis* Compton in *Journ. Bot.* lxx, 284 (1932)!

A laxly branched shrub about 70 cm. high, with glandulose and puberulous branchlets. Leaves 3–4 mm. long, alternate, erect-spreading,

ovate or lanceolate-ovate, obtuse, somewhat incurved, slightly concave and minutely papillate-scabrid above, convex and papillate-scabrid beneath, obtusely keeled in the upper half, with many scattered glands. Flowers in clusters at the forking of the stems, or in lateral, rarely terminal, clusters. Peduncles 3—3.5 mm. long, glandulose and puberulous, with filiform bracteoles at the middle. Sepals 1—1.5 mm. long, oblong or ovate-oblong, obtuse, densely ciliate, obtusely keeled, glandulose and puberulous, with filiform bracteoles at the middle. Sepals 1—1.5 mm. long, oblong or ovate-oblong, obtuse, densely ciliate, obtusely keeled, glandulose and puberulous. Petals 5 mm. long; blade oblong-obovate, very obtuse, glabrous; claw almost as long, linear, ciliate. Stamens with very sparsely pilose filaments. Staminodes 3 mm. long, linear-lanceolate, tipped with a conspicuous gland, tapering to a very slender base, pilose above and beneath at the middle, ciliate upwards. Disk with the margin incurved upon the ovary. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

LADISMITH DIV.: Roodeberg, *Compton* 3851 (type, in Bolus Herb., cotype in Kew Herb.); Gamka Pass, *Esterhuysen* 17128.

Flowering May—Nov. The affinity of this species is with *A. leptospermoides*, but it differs in the presence of bracteoles on the peduncles.

122. **A. gnidiiflora** *Dümmmer in Fed. Rep.* xi, 415 (1912)!

Branchlets pubescent. Leaves 4—6 mm. long, alternate, crowded, ascending, slightly incurved, lanceolate-linear, obtuse or subacute, rounded or somewhat cuneate at the base, deeply concave, smooth and glabrous above, with a prominent keel, gland-scaberulous and strigose beneath. Flowers in terminal clusters. Peduncles 4—5 mm. long, sometimes sparsely pilose, with minute stalked glands, with bracteoles on the lower half. Sepals 2.5 mm. long, lanceolate, subacute, amply ciliate, keeled and gland-scaberulous beneath. Petals 4.5 mm. long; blade widely ovate, very obtuse, concave in the upper half; claw twice as long, slender, sparsely pilose-ciliate. Stamens with sparsely pubescent filaments. Staminodes 4 mm. long, narrowly linear, acute, tipped with a large rotund gland, long-tapering towards the base, pilose except at the base and apex. Ovary densely pilose, with 3 carpels bearing rotund pilose processes. Style densely pilose.

RIVERSDALE DIV.: near Zoutemelks River, in a walk to the clay pit, *Burchell* 6670 (type in Kew Herb.).

Flowering Nov.

123. **A. krakadouwensis**, *Dümmmer in Ann. Bolus Herb.* iii, 47 (1920)!

Branchlets villous. Leaves 6—9 mm. long, alternate, erect-spreading

or suberect, lanceolate-linear, obtuse, rounded at the base, concave and pubescent above, with closely involute margins, rounded and at first pubescent beneath, tuberculate-scabrid and with many raised glands beneath. Flowers in terminal clusters. Peduncles 1—1.5 mm. long, pubescent, with acicular pubescent bracteoles near the apex. Sepals 1.5—2 mm. long, oblong or oblanceolate-oblong, obtuse, slightly concave and usually sparsely pubescent above, ciliate, rounded and $\pm$ pubescent beneath. Petals 4.5—5 mm. long; blade oblanceolate, often retuse, with a gland behind the apex; claw 2—2½ times as long, very slender, sparsely pilose. Stamens glabrous. Staminodes 3.5—4 mm. long, narrowly spathulate in the upper half, subfiliform and sparsely pilose below. Ovary densely villous, usually with 3, sometimes 2 or 4, carpels bearing oblong or clavate processes. Style mostly pilose.

CLANWILLIAM DIV.: Krakadouw Pass, *Bolus* 8959 (type in *Bolus* Herb.); between Heuning Vlei and Crystal Pool, *Esterhuysen* 7529; between Heuning Vlei and Koupoort, near water on plateau, *Esterhuysen* 12126.

Flowering Oct.—Dec.

124. *A. bicolor*, *Dümmer* in *Ann. Bolus Herb.* iii, 61 (1920)!

Branchlets $\pm$ silky-pilose. Leaves 0.5—1 cm. long, alternate, erect-spreading, lanceolate or linear-lanceolate, obtuse or subacute, rounded at the base, concave and glabrous or silky-villous above, keeled and glabrous or villous beneath, usually long-ciliate, rough with minute tubercles above and beneath. Flowers in terminal clusters. Peduncles 0.75 mm. long, sparsely puberulous, with linear ciliate bracteoles on the lower half. Sepals 1.5 mm. long, oblong, obtuse, rounded-convex beneath, ciliate, often sparsely pubescent above. Petals 5 mm. long; blade obovate, with a gland behind the apex; claw almost or quite 2½ times as long, very slender, sparsely pilose below the middle. Stamens glabrous. Staminodes 3.5 mm. long, narrowly linear in the upper half, filiform and pilose below. Ovary densely villous, with 3 or sometimes 2 carpels bearing elliptic-rotund processes. Style pilose on the lower half.

CLANWILLIAM DIV.: Pakhuis Pass, *Schlechter* 10803 (type, in *Bolus* Herb., cotypes in Albany Mus. and National Herb.), *Esterhuysen* 3133, 7407, 22932, *Bond* 584.

Flowering Aug.—Sept.

125. *A. longicornu* sp. nov.; ramulis pilosis; foliis alternatis ovato- vel oblongo-lanceolatis obtusis ciliatis, supra valde concavis glabris, subtus valde carinatis; floribus terminalibus; pedunculis glabris vel sparce pubescentibus bracteolatis; sepalis lineari-lanceolatis subacutis ciliatis

navicularibus; petalis obovatis glabris anguste unguiculatis; staminibus glabris; staminodis lineari-oblongis, infra medium angustissimis pilosis; ovario 2-loculari glabro cornubus oblongis; stylo piloso.

Branchlets pilose. Leaves 4—6 mm. long, alternate, erect-spreading, ovate- or oblong-lanceolate, obtuse, rounded at the base, deeply concave above, slightly recurved and densely long-ciliate at the margin, with a prominent long-ciliate keel, with small scattered glands beneath. Flowers in terminal clusters. Peduncles 0.1—3 mm. long, glabrous or very sparsely pubescent, with slender ciliolate bracteoles on the lower or upper half. Sepals 1.75 mm. long, linear-lanceolate, subacute, navicular, pilose-ciliate. Petals 4.5—5 mm. long; blade obovate; claw 3 times as long, very slender, sparsely ciliate. Stamens glabrous. Stamines 3.5—4 mm. long, with a linear-oblong blade and very slender pilose claw. Disk crenulate. Ovary glabrous, with 2 carpels bearing oblong obtuse processes. Style pilose except near the apex. Fruit laterally compressed, pubescent on the apex, with processes 3 mm. long.

CERES DIV.: Southern Cederberg, Gideon's Kop, *Esterhuysen* 13899.—CLANWILLIAM DIV.: Driehoek Valley, *Esterhuysen* 8117 (type, in Bolus Herb.).

Flowering Sept. The nearest affinity is doubtful. The name alludes to the comparatively long processes on the fruit.

126. **A. cephalodes**, *E. Mey. b, ex Sond. in Harv. & Sond. Fl. Cap.* i, 406 (1860!); *Dümmer in Fed. Rep.* xi, 324 (1912). **A. globuliflora** *Presl, Bot. Bemerk.* 31 (1844)! nomen. **Hartogia cephalotes**, *O. Kze. Rev. Gen.* i, 101 (1891).

Branchlets with coarse hairs. Leaves 0.6—1 cm. long, alternate, erect-spreading or ascending, lanceolate-ovate or ovate, subacute, rounded or subcordate at the base, slightly incurved at the apex, concave and glabrous above, ciliate, convex, tubercled and coarsely pubescent beneath, gibbous behind the apex. Flowers in terminal clusters surrounded by spatulate scarious leaves. Peduncles 1—2 mm. long, sparsely hispid, with linear-filiform bracteoles on the lower half. Sepals 5 mm. long, linear, obtuse, slightly widened and conspicuously ciliate on the upper half. Petals 7 mm. long; blade about 2 mm. long, obovate, glabrous, tapering into a widely linear ciliate claw. Stamens glabrous. Stamines 5.5 mm. long, oblanceolate, concave and conspicuously ciliate on the upper half, linear towards the apex, attenuate and glabrous in the lower half. Ovary pilose on the apex, with 3 carpels bearing oblong densely pilose processes. Style pilose at the base.

CLANWILLIAM DIV.: between Bergvlei and Langvlei, "Zwartbast Kraal," *Drège* (cotypes in Kew Herb. and National Herb.).

Flowering Sept.—Nov. This is obviously very closely related to *A. involucrata*, Eckl. and Zeyher.

127. **A. involucrata**, Eckl. and Zeyher, *Enum.* 109 (1835) !; *Barthl. in Linnaea* xvii, 380 (1843); *Sond. in Harv. and Sond. Fl. Cap.* i, 405 (1860). [**A. cephalodes** a E. Mey. in Drège's Herb.] **Hartogia involucrata**, O. Kze. *Rev. Gen.* i, 101 (1891).

Branchlets coarsely pubescent. Leaves 4—6 mm. long, alternate ascending or erect-spreading, oblong-lanceolate or ovate-oblong, very obtuse, rounded at the base, concave and smooth and glabrous above, distinctly thickened and involute at the margin, rounded, minutely tubercled and pubescent beneath. Flowers in terminal clusters surrounded by rotund, widely obovate or spatulate scarious leaves with membranous margins. Peduncles 2 mm. long, sparsely pubescent, with linear bracteoles on the upper half. Sepals 4 mm. long, linear-oblong, obtuse, narrowing towards the base, ciliate, pilose at the apex. Petals 8 mm. long; blade about 2.5 mm. long, oblanceolate, obtuse, glabrous; claw linear, ciliate on the lower half. Stamens glabrous. Staminodes 7 mm. long, linear-oblanceolate and pilose-ciliate at the middle, linear and glabrous upwards, tapering to an obtuse apex and to a slender glabrous base. Ovary hispid on the apex, with 3 carpels bearing small rounded processes. Style glabrous.

CLANWILLIAM DIV.: sandy places at Bergvlei, *Ecklon and Zeyher* 858 (cotypes in Albany Mus., Kew Herb., Stockholm and S. Afr. Mus. Herb.), *Niven* 23; between Bergvlei and Langvlei, "Zwartbastkraal," *Drège*.

Flowering Sept., Oct.

128. **A. sabulosa**, *Sond. in Harv. and Sond. Fl. Cap.* i, 406 (1860) !; *Dümmer in Fed. Rep.* xi, 324 (1912). **Hartogia sabulosa**, O. Kze. *Rev. Gen.* i, 102 (1891).

Branchlets puberulous. Leaves 0.5—1 cm. long, alternate, crowded, erect-spreading, lanceolate, obtuse, rounded at the base, concave, slightly scabrid and puberulous above, thickened at the margin, often slightly incurved at the apex, obtusely convex, somewhat nerve-keeled, minutely tubercled, puberulous and with large impressed glands scattered beneath. Flowers in terminal involucre clusters. Involucral leaves 3—4.5 mm. long, oblong-elliptic or obovate-elliptic, obtuse, scarious, scabrid, ciliate. Peduncles 2.5—3 mm. long, puberulous, with lanceolate ciliate bracteoles at the middle. Sepals 3 mm. long, lanceolate, obtuse, rounded and puberulous beneath. Petals 5 mm. long; blade ovate, obtuse, glabrous; claw $1\frac{1}{2}$ times as long, linear, sparsely ciliate on the lower half. Stamens glabrous. Staminodes 4 mm. long, linear, slightly widened at the very obtuse apex,

tapering towards the base, ciliate at the middle, with a conspicuous gland behind the apex. Ovary glabrous, with 3 carpels bearing short ovate processes. Style glabrous.

CLANWILLIAM DIV.: Jakhals Vlei, sandy flats, *Nivea* (type in Stockholm).

Flowering Sept., Oct. This species is retained with some doubt. It is very closely related to *A. involucrata*. The material is scanty.

129. *A. affinis*, *Sond. in Harv. and Sond. Fl. Cap. i*, 405 (1860)! **Hartogia affinis**, *O. Kze. Rev. Gen. i*, 101 (1891).

Branchlets pubescent. Leaves 4—7 mm. long, alternate, ascending, subimbricate, lanceolate or ovate-lanceolate, obtuse, rounded or subcuneate at the base, slightly incurved in the upper half, concave and $\pm$ tuberculate-scabrid above, pilose-ciliate on the upper half, rounded and slightly keeled, tuberculate-scabrid and puberulous beneath. Flowers terminal and in the axils of the uppermost leaves. Peduncles 1 mm. long, puberulous, with bracteoles at the middle. Sepals 1.75—2 mm. long, ovate-lanceolate, obtuse, densely ciliate, tuberculate-scabrid and with short glandular hairs beneath, with a prominent keel decurrent on the calyx-tube. Petals 5 mm. long; blade narrowly obovate; claw almost as long, slender, ciliate. Stamens glabrous. Staminodes 4 mm. long, linear-oblong and villous at the middle, tapering to a slender apex bearing a large gland, slender and ciliate below the middle. Ovary glabrous, with 3 carpels bearing rotund processes. Style glabrous.

PRINCE ALBERT DIV.: Zwartberg, Vrolyk, in wet situations on the mountains, Drège 7113 (type, in Riks Mus., Stockholm).

Flowering Aug. This closely resembles *A. hirta* Bartl. and Wendl. of which it may be an inland form.

130. *A. hirta*, *Bartl. and Wendl. Diosm.* 188 (1824); *Sond. in Harv. and Sond. Fl. Cap. i*, 404 (1860); *Engl. in Engl. and Prantl., Pflanzenfam.* iii, §4, p. 150 (1896); *Dümmer in Fed. Rep. xi*, 323 (1912). **Diosma hirta**, *Lam. Encycl. Meth. ii*, 286 (1786); *ej. Tabl. Encycl. ii*, 81 (1797). **Bucco hirta**, *Roem. and Schultes, Syst. Veg. v*, 446 (1819). **A. biophylla**, *Eckl. and Zeyher, Enum.* 110 (1835)! *Bartl. in Linnaea xvii*, 373 (1843). **A. adenocaulis**, *Eckl. and Zeyher, Enum.* 115! **Hartogia adenocaulis**, *O. Kze. Rev. Gen. i*, 101 (1891). **Agathosma hirtoides**, *Dümmer in Fed. Rep. xi*, 323 (1912)!

Branchlets puberulous or pubescent, with prominent leaf-bases. Leaves 0.4—1.5 cm. long, alternate, ascending or erect-spreading, lanceolate or ovate-lanceolate, obtuse, acute or acuminate, rounded or subcuneate at the base, concave above, usually pilose-ciliate, rounded

and often keeled beneath on the upper half, with scattered glands and $\pm$ pubescent or pilose beneath, or entirely glabrous, sometimes tuberculate-scabrid. Flowers in terminal clusters and in the axils of the uppermost reduced leaves. Peduncles 2—4 mm. long, glabrous or sparsely pilose, with bracteoles at or shortly below the middle. Sepals 1.5—2 mm. long, ovate- or oblong-lanceolate, obtuse, pilose-ciliate, convex beneath, conspicuously keeled down to the peduncle, sometimes scabrid and with short glandular hairs. Petals 4.5—5 mm. long; blade obovate or elliptic, obtuse, concave above, sometimes almost cucullate at the apex; claw $\frac{2}{3}$ or almost as long, linear or subfiliform, ciliate. Stamens glabrous. Staminodes 3.5—5 mm. long, linear, linear-oblong or oblong-lanceolate, obtuse, with a gland behind the apex, tapering to a slender base, villous at the middle, ciliate below. Ovary setose on the apex, or glabrous, with 3 carpels bearing obovate or rotund processes. Style glabrous.

HUMANSDORP DIV.: Slang River, *Fourcade* 1846; Company's Drift, *Fourcade* 2868; Loerie Plantation, *Dix* 149; Klipdrift, *Thode* A2469, A2470; Karreedouw, *Compton* 4559.—PORT ELIZABETH DIV.: Witte Klip, *Bolus* 9113, *Long* 654; between Krakamma and upper part of Leadmine (Maitland) River, *Burchell* 4587; hills near Krakamma, *Ecklon and Zeyher* 902 (cotype of *A. adenocaulis* in Stockholm); 7 miles west of Port Elizabeth, *Walgate* in *Bolus* Herb. 23941; between Port Elizabeth and Van Staadens, *Barker* 513; near Port Elizabeth, *Zeyher* 2164; Walmer, *Paterson*, 481a, *Kemsley* 222; Hofman's Bosch, *Britten* 1096.—UITENHAGE DIV.: Uitenhage, *Ecklon* 689 (type of *A. hirtoides* in Kew Herb.); flats at the base of Van Staadensberg, *Zeyher* 2166, *Ecklon and Zeyher* 861 (cotypes of *A. biophylla* in Kew Herb., National Herb., Stockholm and S. Afr. Mus. Herb.), *Bolus* 1603, *MacOwan* 1035, 1067, *Paterson* 481; Bethelsdorp, *Paterson* 2651; between Van Staadens and Bethelsdorp, *Drège* 7096; Redhouse, *Paterson* 481.

Flowering Jan.—Dec.

131. *A. dentata* sp. nov.; ramulis dense pubescentibus; foliis alternatis cordatis vel orbicularibus hispidulis, supra paulum concavis, margine convexis; floribus terminalibus; pedunculis puberulis, basin bracteolatis; sepalis obovatis obtusissimis, subtus pubescentibus; petalis obovatis glabris, infra medium unguiculatis; staminibus glabris; staminodis linearibus sparse pilosis, apice recurvis; ovario uniloculari eornuto, apice pilis clavatis; stylo infra medium sparse piloso.

Wiry shrublet about 30 cm. high, with densely pubescent branchlets. Leaves 2—2.5 mm. long, alternate, erect-spreading, slightly recurved, cordate or orbicular and cordate at the base, slightly concave above, convex at the margin, hispidulous above and beneath, with gland-tipped

hairs on the margin, with scattered glands beneath and near the margin. Flowers several to many together in terminal clusters. Peduncles 0.5 mm. long, puberulous, with oblong obtuse and pubescent bracteoles at the base. Sepals 1.5 mm. long, obovate, very obtuse, usually glabrous above, slightly concave beneath, pubescent, with a gland behind the apex. Petals 4—4.5 mm. long, glabrous; blade obovate, very obtuse, tapering to a linear claw $\frac{1}{3}$ as long. Stamens glabrous. Staminodes 3—3.5 mm. long, linear, tapering to the base and to the recurved apex, very sparsely pilose about the middle. Disk well developed, distinctly toothed. Ovary consisting of one obovate carpel with clavate hairs on the upper half, without processes. Style very sparsely pilose on the lower half.

CLANWILLIAM DIV.: Cederberg, Matjesrivier, *Wagener* 106 (type, in National Bot. Gdns., Kirstenbosch, cotype in Bolus Herb.).

Flowering Aug. A very distinct species. The name alludes to the toothing of the disk.

132. **A. kougaense** sp. nov.; ramulis puberulis; foliis alternatis lanceolatis, acutis ciliolatis supra concavis, subtus convexis; floribus axillaribus; pedunculis puberulis ebracteolatis; sepalis ovato-oblongis obtusis ciliatis, margine hyalinis; petalis obovatis subacutis vel acutis ciliolatis, supra sparse pubescentibus, basi cuneatis; staminibus glabris; staminodis linearibus ciliatis, apice glandula notatis; ovario 2-loculari glabro, cornubus rotundatis; stylo glabro.

Branchlets puberulous. Leaves mostly 1 cm. long, alternate, erect-spread, lanceolate, acute, rounded at the base, concave and somewhat rough above, slightly thickened at the margin, ciliolate, rounded and with scattered and marginal glands beneath, with a scarcely raised nerve. Flowers in pairs in the axils of the upper leaves. Peduncles 1.5—2 mm. long, puberulous, subtended by small ovate bracteoles. Sepals 2 mm. long, ovate-oblong, obtuse, hyaline at the margin, ciliate, rounded and with 2 rows of glands beneath. Petals 5 mm. long, obovate, subacute or acute, cuneate at the base, ciliolate, slightly concave and sparsely pubescent above, with several glands beneath. Stamens glabrous. Staminodes 1.5 mm. long, linear, tipped with a conical gland, slightly concave above, ciliate. Disk crenulate. Ovary glabrous, with 2 carpels bearing very small rotund processes. Style glabrous.

UNIONDALE DIV.: Kouga Mts., peak east of Smutsberg, *Esterhuysen* 7028 (type, in Bolus Herb.).

Flowering Nov. The affinity is with *A. unicapellata*, from which it is distinguished by leaves concave above, by obtuse sepals and pointed petals, by linear staminodes, 2 carpels and rotund processes.

133. **A. unicarpellata** comb. nov. **Barosma unicarpellata** Fourcade in *Trans. Roy. Soc. S. Afr.* xxi, 99 (1932)!

A much branched shrub about 20 cm. high. Branchlets puberulous except on raised strips at the bases of the leaves. Leaves mostly 6–8 mm. long, alternate, erect-spreading, ovate-lanceolate or lanceolate, acute, cuneate at the base, slightly convex above, slightly revolute and obscurely gland-crenate, glabrous, with a prominent nerve and scattered glands beneath. Flowers 1–3 together in the axils of the upper leaves. Peduncles 0.5–1 mm. long, glabrous, subtended by small rotund ciliolate bracteoles. Sepals 1–1.25 mm. long, widely ovate, acute, ciliate, obtusely convex and shiny beneath. Petals 5 mm. long, obovate, rounded at the apex, narrowly cuneate at the base, slightly concave and pubescent above. Stamens glabrous. Staminodes 1.25–1.5 mm. long, spathulate, obtuse, ciliate, slightly concave above. Disk crenulate. Ovary glabrous, with 1 carpel bearing an oblong obtuse terete process. Style glabrous.

HUMANDSORP DIV.: between Humansdorp and Hankey, *Fourcade* 2235 (type, in Bolus Herb.), 5555, 6077.

Flowering July, Aug.

134. **A. umbonata** sp. nov.; ramulis dense villosis; foliis alternatis lanceolatis apiculatis piloso-ciliatis, supra concavis; floribus axillaribus; pedunculis glabris ebracteatis; sepalis lanceolato-ovatis obtusis ciliolatis; oblongo-oblanceolatis subacutis, supra sparse villosis; staminibus glabris; staminodis oblanceolato-oblongis ciliatis, apice glandula notatis; ovario biloculari apice pubescente ecornuto; stylo glabro.

About 60 cm. high. Branchlets densely clothed with long spreading grey hairs. Leaves 1–1.5 cm. long, alternate, erect-spreading, lanceolate, apiculate, rounded at the base, concave above, pilose-ciliate, rounded and with many small scattered glands beneath, often pilose beneath on the nerve. Flowers axillary, solitary. Peduncle 0.5 mm. long, glabrous, subtended by oblong obtuse bracteoles. Sepals 1 mm. long, lanceolate-ovate, obtuse ciliolate, convex beneath. Petals 6 mm. long, oblong-lanceolate, subacute, concave and sparsely villous above, ciliolate on the lower half, with 2 rows of glands beneath. Stamens glabrous, with an apical gland on the connective. Staminodes 1.5 mm. long, oblanceolate-oblong, with a round terminal gland, ciliolate on the upper half. Disk with obtuse teeth, closely enveloping the ovary. Ovary pubescent on the apex, with 2 carpels without evident processes, or sometimes with a minute papilla-like process on the apex of the dorsal angle. Style glabrous. Fruit 1-seeded; coccus elliptic, laterally compressed, hispid on the upper half, surmounted by a prominent widely deltoid hump.

SWELLENDAM DIV.: Lemoenshoek Peak, south side of a long ridge, *Esterhuysen* 10486 (type, in Bolus Herb.).

Flowering Sept. The affinity is with *A. unicapitata*, from which it is distinguished by villous branchlets and a bicarpellate ovary without distinct processes on the carpels.

IMPERFECTLY KNOWN SPECIES.

- A. ambigua** Sweet, *Hort. Brit.* ed. I, p. 89 (1827).
A. brevifolia, Loudon, *Hort. Brit.* i, 86 (1830); *G. Don. Gen. Syst.* i, 787 (1831).
A. clavata, Hoffmgg. *Verz. Pfl.* 36 (1824).
A. coccinea, Hoffmgg. *Verz. Pfl.* 36 (1824).
A. cordata, Hoffmgg. *Verz. Pfl.* 36 (1824).
A. dioica, Sweet, *op. cit.*, p. 89.
A. juncea, Hoffmgg. *loc. cit.*
A. lasiophylla, *G. Don. op. cit.*, 788.
A. perforata, *G. Don. op. cit.*, 789.
A. prolifera, Bartl. and Wendl. *Diosm.* 185 (1824); *Sond. in Harv. and Sond. Fl. Cap.* i, 431 (1860). **Bucco prolifera**, Wendl. *Collect.* iii, 9, t. 77 (1811); *Roem. and Schultes, Syst. Veg.* v, 445 (1819). **Hartogia prolifera**, *O. Kze. Rev. Gen.* i, 101 (1891).
A. punctata, *G. Don. loc. cit.*
A. reflexa, Link, *Enum. Hort. Berol.* i, 238 (1821).
A. rufescens, *G. Don. loc. cit.*
A. Schlechteriana, Dümmer in *Fed. Rep.* xi, 334 (1912).
A. spicata, Licht. ex *G. Don, Gen. Syst.* i, 788.
A. subcordata, Hoffmgg. *Verz. Pfl.* 36, 163.
A. teretifolia, *G. Don. Gen. Syst.* i, 787.
A. thymifolia, Hoffmgg. *Verz. Pfl.* 36.
Barosma trichopodis, Bartl. and Wendl. ex Juss. in *Mem. Mus. Paris* xii, 474 (1812).

SPECIES EXCLUDED FROM AGATHOSMA.

Agathosma barbata, Spreng. *Pugill.* i, 20 (1813) = **Macrostylis villosa** Sond.

A. spicata, Licht. ex Roem. and Schultes, *Syst. Veg.* v, 448 (1819) sub **Buccone** = **Selago sp.** ?